Mamiya

SERVICE INSTRUCTIONS

FOR

Mamiya RB 67 PRO S

Trouble Shooting

Repair Manual

Special Tool List and Special Measuring Instrument List

Mamiya
CAMERA CO., LTD.
TOKYO, JAPAN

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TROUBLESHOOTING

Before repairing, refer to page 39 Special pointers on Using the Mamiya RB67 Pro-S of INSTRUCTIONS.

Defect	Possible cause	Reference page
	Shutter & Mirror setting	
Malfunction of Cocking lever	Stop lever (RS1451)....Fail to come off from Ratchet pawl	12-14
	Upper release lever(RS1441K2)....Improper operation	14
	Clearance between Stop lever and Ratahet plate....Improper operation	13
	Shutter....Defect	
Fail to set Mirror holder	Hang lever (RS2481K2)....Improper operation	4
Bounce of Cocking lever possible	Clearnce between Stop lever (RS1451) and Ratchet plate....Imperfect adjustment	14-15
Resetting of Cocking possible	Stop lever (RS1451)... Improper operation	12
No return of Cocking lever	Cocking ring (RS2133)....Improper adjustment of Cocking lever return position	6
Fail to cock Shutter	Cocking ring (RS2133).....Out of position	2-5
	Shutter cocking....Out of position	53-54
	Shutter release	
Inoperative Shutter release	Stop lever (RS1451)....Improper operation	30-31
	Clearnce between Stop plate and Body lug ....Out of position	32-33
	Preventive lever (aRSH7161K2) of Roll film holder....Improper operation	49
Multiple depression of Shutter release button possible	Stop lever (RS1421K2) Upper release lever (RS1441K2) and Stop lever (RS1451)..... Improper operation and Imperfect adjustment	11-13
Inoperative shutter release at Horizontal position	Coupling arm (RS2532)... Out of position	27
	Lock lever (aRS1221K2,aRS1222K2) of Revolving adapter....Improper operation	

Defect	Possible cause	Reference page
	Spring (aRS3175) of Stop plate...Out of place	
Double exposure prevention unworkable at Horizontal position	Connection of Coupling plate (aRS3176) and No. 3 lever (aRS3183K2)... Imperfect adjustment	35
	Coupling arm (RS2531)... Imperfect adjustment	27
	Coupling pin assy. (RS1271K2)... Improper operation	29
Double exposure prevention unworkable at Vertical position	Release lock linking nut (aRS1471)... Imperfect adjustment	34
	Clearance between Coupling plate (aRS3176) and No. 3 lever (aRS3183K2)... Imperfect adjustment	35
Multiple exposure impossible	Operation lever of Preventive lever assy.(aRSH71'1K2)... Improper operation	50
	Focusing track and Focusing knob fixing lever	
Unusual torque of Focusing knob	Adjusting screw (SN149)... Looseness or tightness	18
Focusing knob fixing lever unworkable	Setting lever (aRS1481)... Imperfect adjustment	19
	View finder and Focusing	
Red signal bar unworkable	Marking lever (aRS3131K2-1-2).... Imperfect adjustment	24
	Horizontal changing bar (aRS1255) of Revolving adapter... Improper operation	37
Improper Viewfield at Horizontal position	Red bar (aRS3111)... Imperfect adjustment	24
Out of focus at infinity	Bayonet parallelism... Imperfect adjustment	21
	Body length... Imperfect adjustment at infinity	21
	Lens infinity... Imperfect adjustment	55
	Shutter... Defective parallelism	
Vague focusing at infinity and or shortest distance	Bayonet... Imperfect adjustment of parallelism	21
	Focusing screen... Out of position	22

Defect	Possible cause	Reference page
Imoperative shutter release at Vertical position	Release lock linking nut (aRS1471)... Imperfect adjustment.	34
	Winding and Wind-stop	
No film Transported	Defective Winding mechanism	40
	Ratchet pawl (aRS6435K2)... Improper operation and slipping	
Fail to release Wind-stop	Coupling arm (RS2531, aRS2532)... Imperfect adjustment of Working length	27. 28
	Charging lever (aRS7112K2), Sector gear (aRSH7151) and Pawl (aRSH7144K2)... Improper operation	43. 44
	Film counter assy.and Release lever (aRS6451K2) ... Improper operation	45 - 47
Wind-stop unworkable	Film counter assy. and Winding lever ... Improper operation	40. 44
Immovable Exposure counter from "S"	Third gear (aRSH6476K2) and Film counter gear (aRSH6491) mesh... Out of position	40
Fail to return to "S"	Third gear (aRSH6476K2) and Film counter gear (aRSH6491) mesh... Inseparation	43
	Spring (RSH6495)... Out of place	41
Imperfect return of Winding lever	Charging lever (aRSH7112K2)... Improper operation	43. 45
	Hook (aRSH7131K2) and Pawl (aRSH7144K2)... Imperfect adjustment	44. 45
Overlap	Counter roller (aRSH6344K)... Slack	40
	Film counter and Release lever (aRSH6451K2) ... Improper opertion	40
Film leaning	Film guide (aRSH6333, 6334)... Out of Position	40
	Set screw (PD2x4) of Roller shaft (aRSH6346)... Looseness	
	Double exposure prevention	
Double exposure prevention unworkable	Shutter release position... Imperfect adjustment	11
	Clearnce between Stop plate and Body lug ...Imperfect adjustment	32 - 33

Defect	Possible cause	Reference page
	Revolving Adapter	
Revolving adapter unworkable	Release lock bar (aRS1261)... Improper operation Lock lever (aRS1221K2 and aRS1222K2)... Improper operation	37
	Shutter	
Irregular Slow speed	Speed regulating governor (501-3028)... Defect	Refer to Service manual #1 SEIKO SHUTTER (653E)
Irregular High spped	Blade actuating ring (501-2019)... Improper operation Main drive spring (501-2013)... Defect	
No synchronization	Contact lever (730-4527)... No induction Flash terminal (LE103-362K)... Defect	
No synchronization at M or X	Sychro contact X and M (501-4517,501-4510) ... Imperfect adjustment	

REPAIR MANUAL

Contents Page

Camera Body

1. Removing and attaching methods for the releative parts of Right and Left

1-1 Right panel 1

1-2 Left panel 1

1-3 Attaching 1

2. Operating shutter cocking ring, shutter release and mirror raising mechanism

2-1 Operating standard for Body cocking ring 2

2-2 Cocking the operating position of shutter cocking ring 2

2-3 Adjusting the position of Shutter cocking ring 4

2-4 Reassembly relative to mirror raising gear mechanism 7

3. Release position of shutter button 11

4. Resetting prevention mechanism of Cocking lever

4-1 Operation mechanism 12

4-2 Adjusting procedure 13

NOTE:Difference of adjusting method between former RB67 and RB67 Pro-S 15

5. Replacing Mirror holdere and Light baffle plate

5-1 Removing 16

5-2 Attaching 17

6. Focusing track and focusing knob fixing lever

6-1 Adjusting rack plate 18

6-2 Adjusting Focusing track 18

6-3 Adjusting Focusing knob fixing lever 19

7. Body flange back and focus of view finder

7-1 Adjusting Body length 20

7-2 Adjusting focus of the view finder 22

NOTE: Focal point and film guide rail position 23

8. Horizontal picture format indication mechanism

8-1 Attaching Frame for Red bar assembly 24
8-2 Attaching Marking lever 24
8-3 Adjusting Red signal bar 25

9. Releasing mechanism of Film winding stop

9-1 Operation of Film wind-stop mechanism 26
9-2 Checking and adjusting Releasing mechanism of Film wind-stop 27
9-3 Chcking Coupling pin for film wind-stop releasing of Revolving adapter 29

10. Double Exposure prevention mechanism

10-1 Operation of double exposure prevention mechanism 30
10-2 Adjusting method of Double exposure prevention mechanism 32
10-3 Checking Revolving adapter Coupling pin for double exposure prevention 37

11. Others

11-1 Adjusting operation of Focusing Hood 38
11-2 Removing Revolving adapter and Lens in trouble 38

Roll Film Holder

12. Removing and attaching Top cover

12-1 Removing 39
12-2 Attaching 39

13. Film advacing mechanism 40

14. Film wind-stop mechanism

14-1 Operating mechanism 40
14-2 Attaching and adjusting Film counter 41

15. Mechanism relative to Film wind-stop releasing

15-1 Operating mechanism 43
15-2 Attaching and adjusting 44

16. Double exposure preventive mechanism

16-1 Operating mechanism 48
16-2 Attaching and adjusting 49

17. Multiple exposure mechanism 50

18. Operating mechanism of Red signal 51

19. Confirmation of Double exposure preventive mechanism 52

Lens

20. Operating standard for Lens shutter cocking pin

20-1 Operating standard for Lens shutter cocking pin 53
20-2 Checking the operating position of shutter cocking 54

21. Adjusting method of RB Lens

21-1 Adjusting in finity of lens flange back 55
21-2 Removing Lens assy. for 50mm F4.5 and 65mm F4.5 NB Lenses 56
21-3 Attaching Lens assembly for 50mm Fr.5 and 65mm F4.5 NB 57

NOTE:Modification for RB67 Lenses Shutter and
Shutter cover 58

1. Removing and attaching methods for the releative parts of Right and Left panels

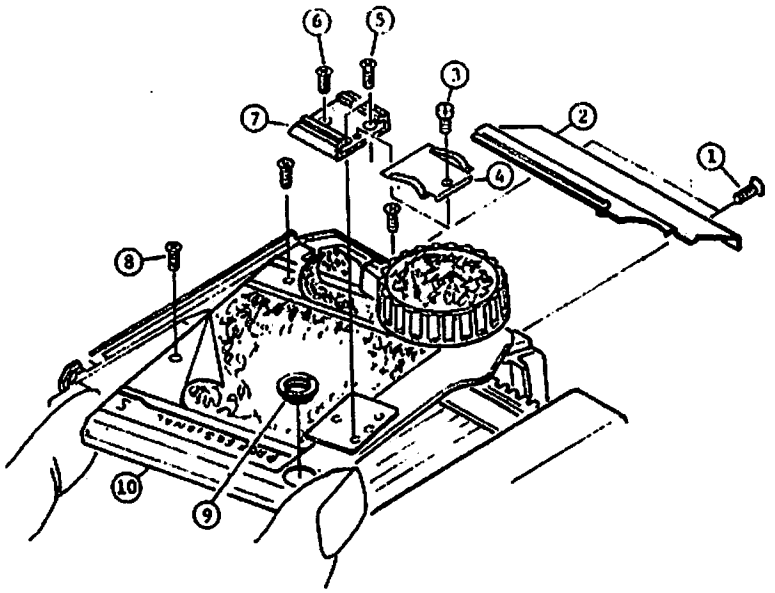


Fig.1

1-1 Right panel (aRS1631)

(1) The arabic numeral in a circle indicates the procedure of removing.

(2) Slide Right panel forward, then pull out upward as shown in Fig.1.

1-2 Left panel (aRS1641)

(1) The arabic numeral in a circle indicates the procedure of removing.

(2) Press down the cocking lever and slide Left panel forward, then pull out upward as shown in Fig 2.

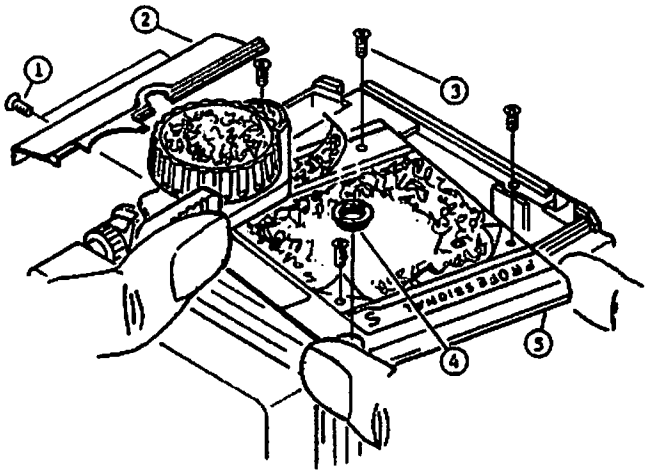


Fig.2

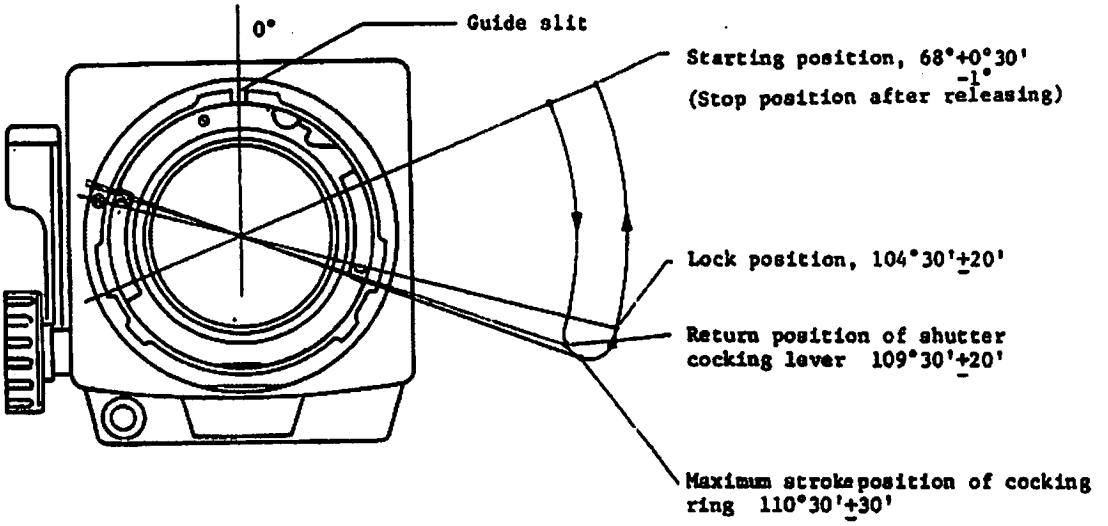
1-3 Attaching

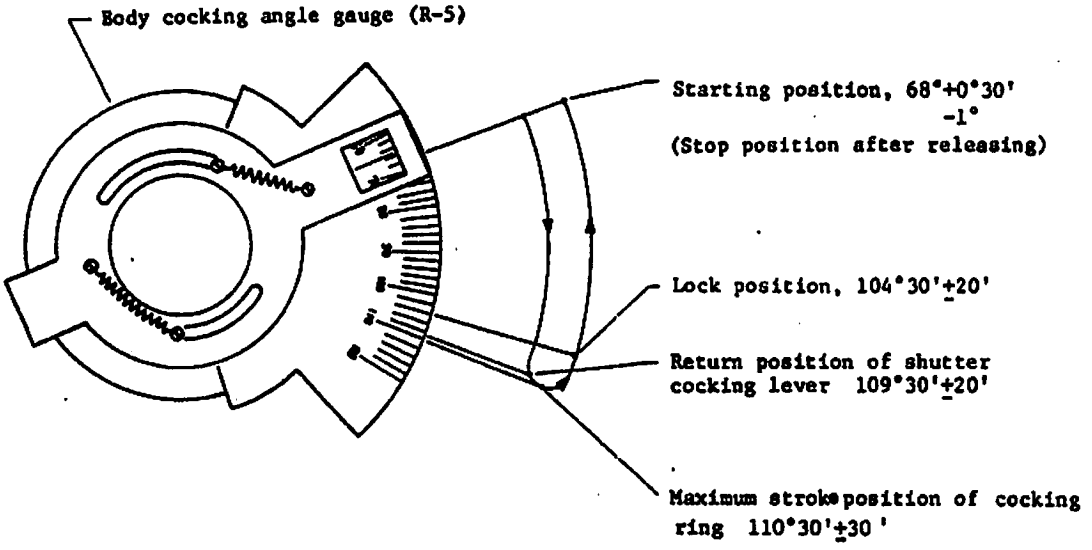
(1) Attach Right and Left panels in the reverse order of the arabic numeral in a circle.

* Light baffle plate, lower (RS1134) should be placed on Light baffle plate, upper (RS1133).

2. Operating shutter cocking ring, shutter release and mirror raising mechanism

2-1 Operating standard for Body cocking ring


0°
Guide slit
Starting position, 68°+0°30' -1°
(Stop position after releasing)
Lock position, 104°30'±20'
Return position of shutter cocking lever 109°30'±20'
Maximum stroke position of cocking ring 110°30'±30'


Body cocking angle gauge (R-5)
Starting position, 68°+0°30' -1°
(Stop position after releasing)
Lock position, 104°30'±20'
Return position of shutter cocking lever 109°30'±20'
Maximum stroke position of cocking ring 110°30'±30'

2-2 Checking the operating position of shutter cocking ring

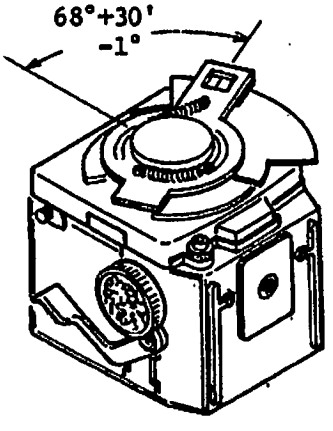


Fig.5

a) Checking starting position

1. Press the shutter release button. (Mirror and Light baffle plate snap up.)

2. Check it turning lightly the tip of the gauge lever with the fingers.

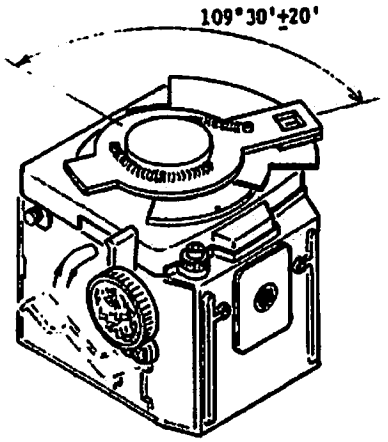


Fig.6

b) Checking return position

1. While turning the tip of the gauge lever with the fingers counterclockwise, press down the shutter cocking lever gradually until the scale of the gauge indicates 109° ; then release the fingers.
   The shutter cocking lever does not return to the original position if the release position is inside the standard.

2. Operate as in 1 until the scale shows 109°50'.
   The shutter cocking lever returns to the original position if the release position is inside the standard.

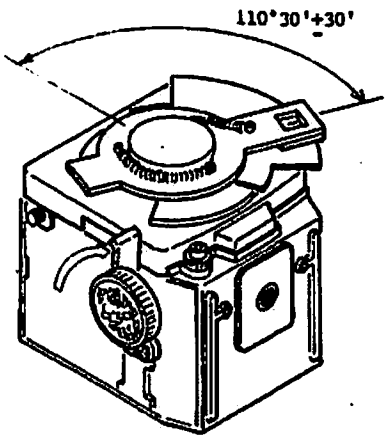


Fig.7

c) Checking stroke allowance

Check it where the shutter cocking lever is fully pressed down while turning the tip of the gauge lever with the fingers counterclockwise.

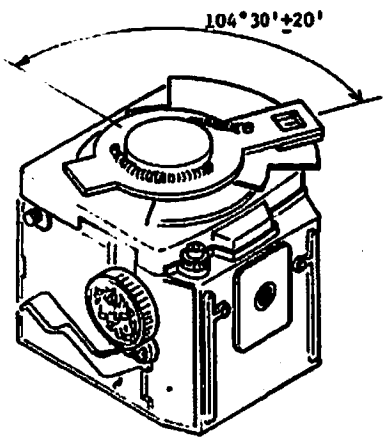


Fig.8

d) Checking lock position

After setting the mirror and returning the shutter cocking lever, check it turning the tip of the gauge with the fingers counterclockwise.

2-3 Adjusting the position of Shutter cocking ring

a) Standard gear meshing position of cocking ring at lock position

Standard gear meshing position is as shown in Fig. 9 when Mirror raising lever (RS2451K2) is hooked on Hang lever (RS2481K2) after setting the mirror.

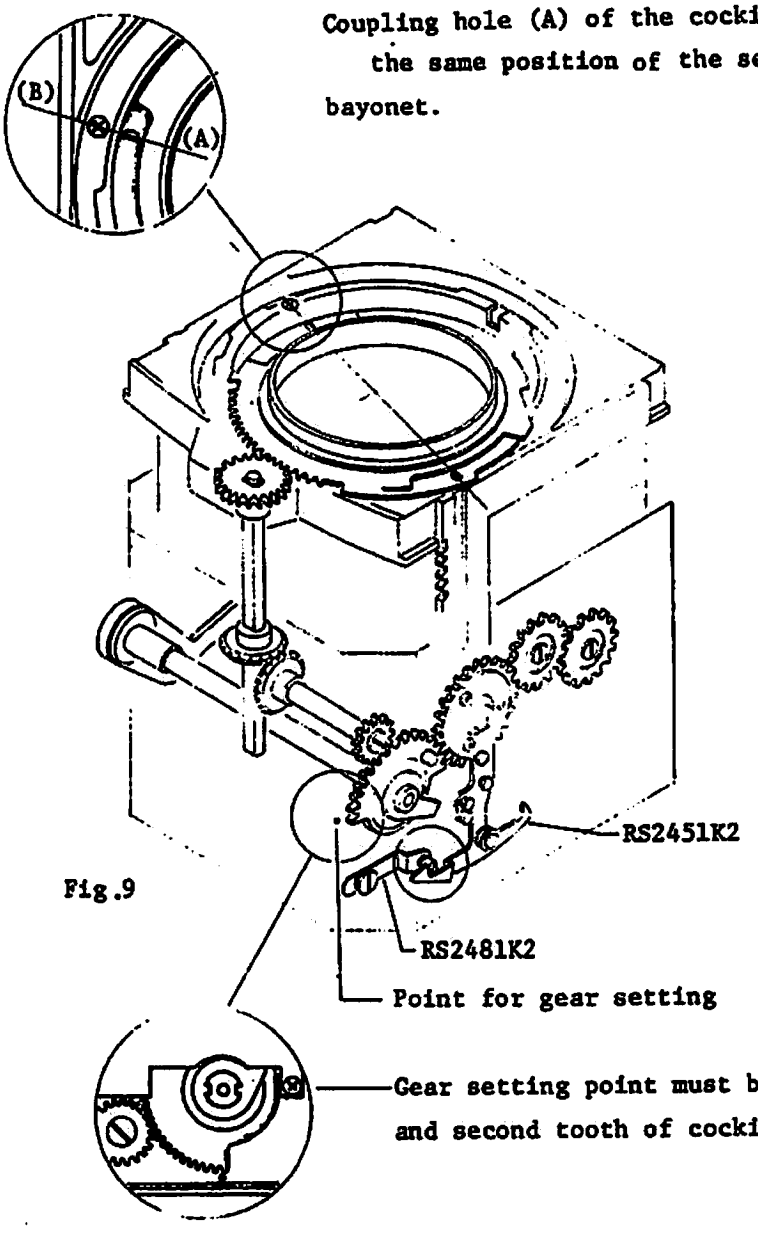


Fig.9

Coupling hole (A) of the cocking ring comes to almost the same position of the set screw (B) of the bayonet.

Gear setting point must be set between first and second tooth of cocking gear.

b) Adjusting lock position

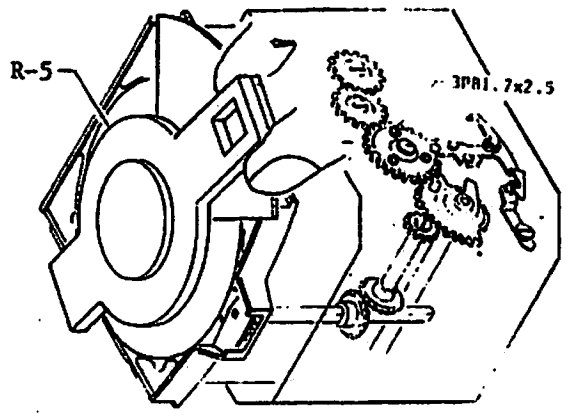


Fig.10

(1) Adjust the lock position(104°30'±20') of cocking ring by sliding Mirror raising lever after loosening three Screws (3PB1.7x2.5).

Use Body cocking angle gauge (R-5) to adjust the lock position as shown in Fig. 10.

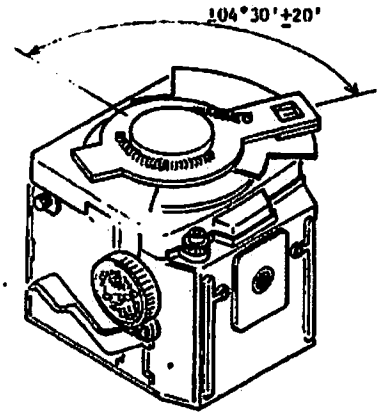


Fig.11

(2) In case the above method fails to adjust, change the meshing point between the gear of Cocking shaft and Cocking ring by one tooth after removing Catch plate (RS2144) as shown in Fig. 12.

Then confirm the operation.

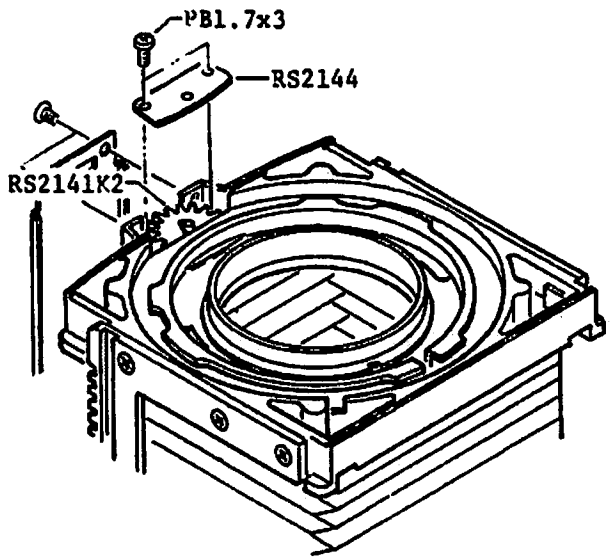


Fig.12

C) Adjusting return position of Shutter cocking lever

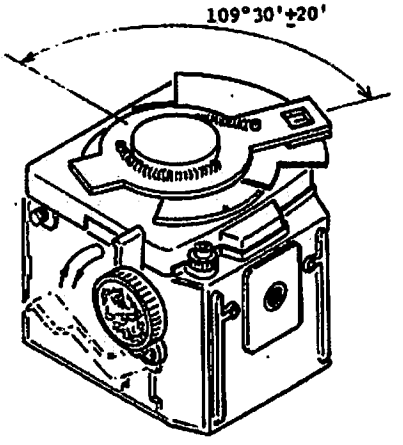


Fig. 13

(1) Shutter cocking lever shall return to the original position when the lever of the gauge comes to the standard of 109°30'±20".

At this position, Ratchet powl is separating from the tooth of Ratchet gear as shown in Fig. 14.

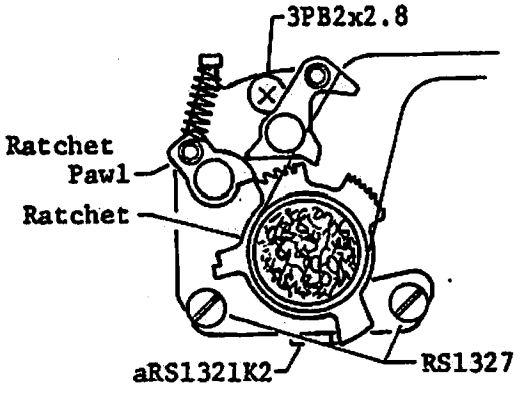


Fig. 14

(2) In case the lever fails to return, adjust the position of Cocking base plate (aRS1321K2) after loosening Screw (RS1327) and (3PB2x2.8BNi).

Screw (RS1327) is tightened with Nut from inside of the body.

* In case the return position exceeds more than 109°50', Cocking lever may not return.

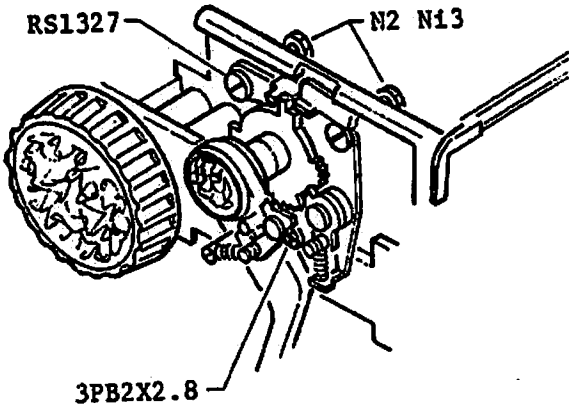


Fig. 15

* When it shows less than 109°10', shutter does not cock.

2-4 Reassembly relative to mirror raising gear mechanism

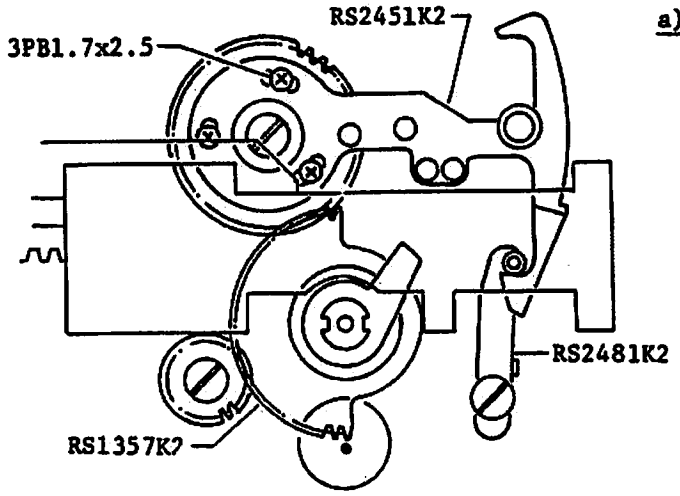


Fig.16

a) Wheel setting and mirror raising lever

Align the space between the first and second tooth of Cocking gear (RS1357K2) with the point for gear setting when Mirror raising lever(RS2451K2) is hooked on Hang lever(RS2481K2).

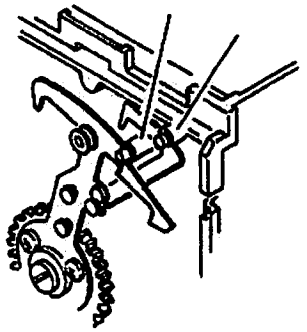


Fig.17

b) Adjusting pin for mirror holder and Light baffle plate

Operate Mirror raising lever(RS2451K2) and Light baffle plate lever(RS2475K2) with the fingers as shown in Fig. 17. These levers shall operate smoothly. Mirror and Light baffle plate shall be free from play when they are raised. Adjust play by bending pin for Mirror holder and Light baffle plate.

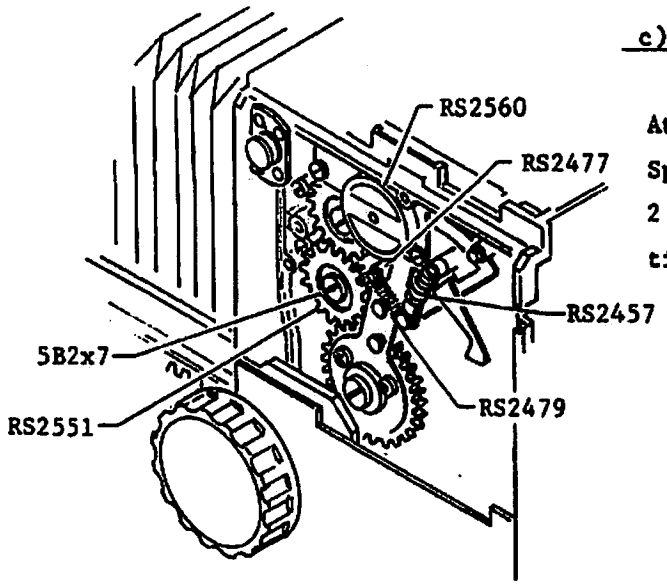


Fig.18

c) Attaching Governor

Attach Spring(RS2457), Collar(RS2477), Spring(RS2479), Governor(RS2560K2) and 2 pieces of Gear(RS2551) in order; then tighten 2 pieces of Screw(5B2x3) securely.

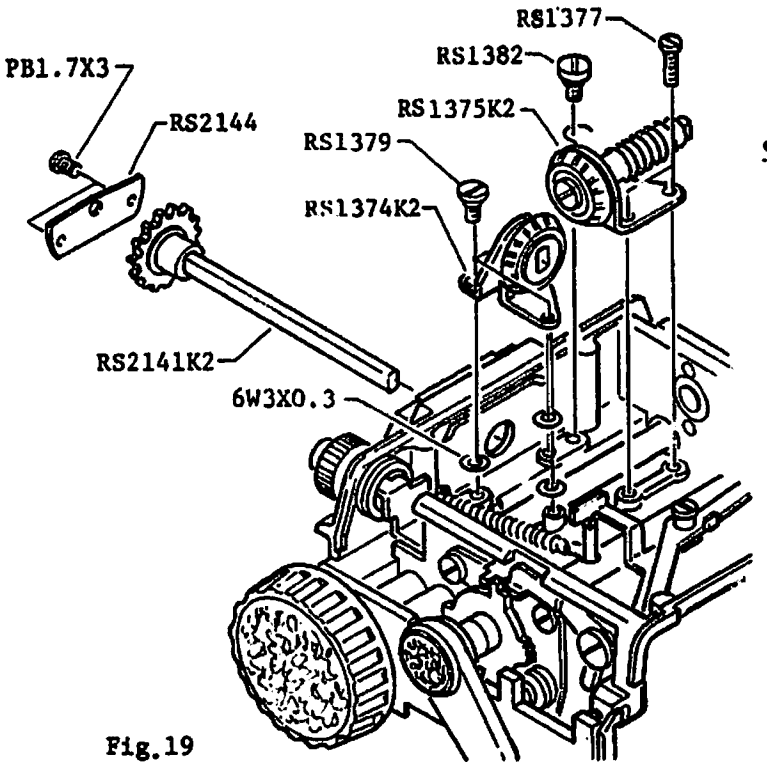


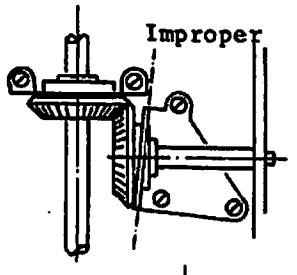
Fig.19

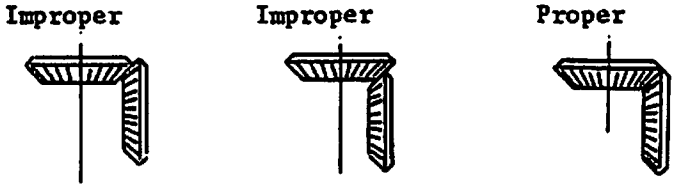
d Attaching Bevel gear

(1) Tighten Bevel gear (RS1374K2) with Shoulder screw (RS1379).

(2) Attach Bevel gear (RS1375K2) with Screw (RS1377) and (RS1382)

(3) Adjust the position of Bevel gear (RS1375K2) so that it moves smoothly.





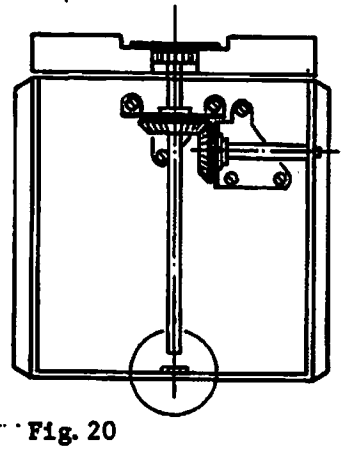


Fig. 20

e) Attaching Cocking shaft

(1) Attach Cocking shaft (RS2141K2).

(2) Position Bevel gear so that the end of Cocking shaft comes to the position of Nut located at the rear part of the body when Front panel(RS2111) is retracted.

f) Winding Spring

(1) Wind Spring (RS1381) with 2 1/4 turns and tighten Idle gear (RS1361) with Screw (RS1368) when the mirror is raised.

(2) Check the smooth operation of Mirror raising lever.

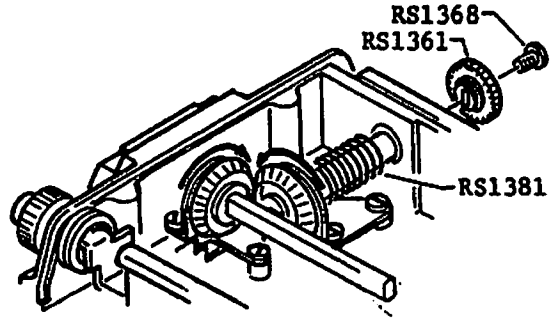


Fig.21

g) Attaching Cocking ring (RS2133)

(1) Mirror raising lever is hoocked on the hang lever .

(2) Coupling hole (A) of the cocking ring nearly coincides with the bayonet setscrew (B) as shown in Fig. 22.

(3) Position Catch plate so that the gear of the cocking shaft (RS2141K2) mesh well.

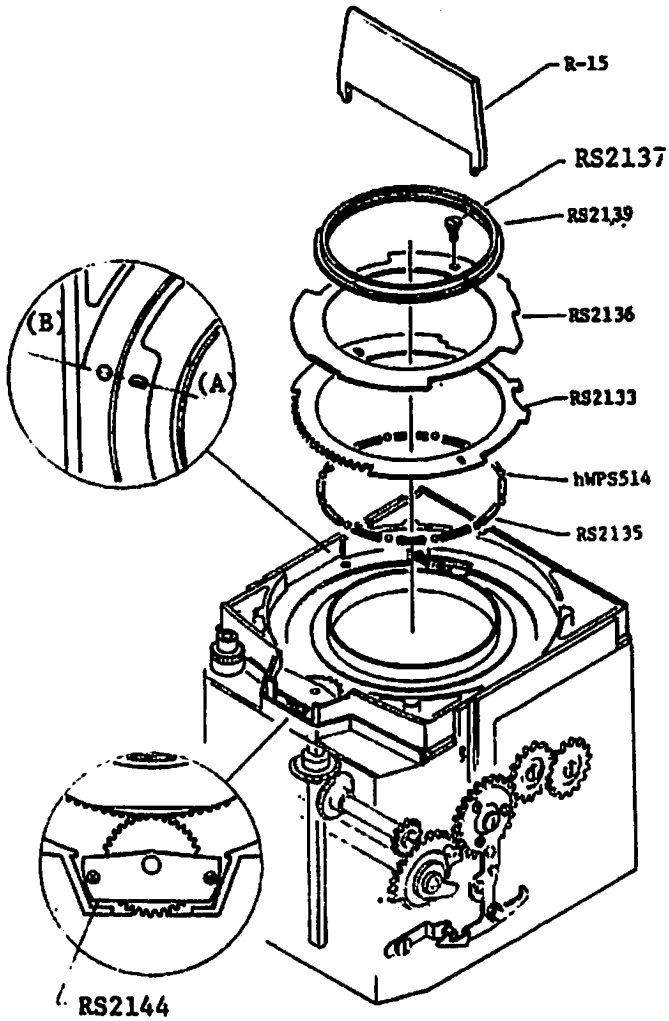


Fig 22

h) Check operations of gear relation

(1) Mirror raising lever is hooked on the lever.

(2) Insert a driver into the hole of the cocking ring and move clockwise. Confirm that the cocking ring returns to its original position when gently releasing it as shown in Fig. 23.

(3) At original position, Cocking ring shall not move counter-clockwise.

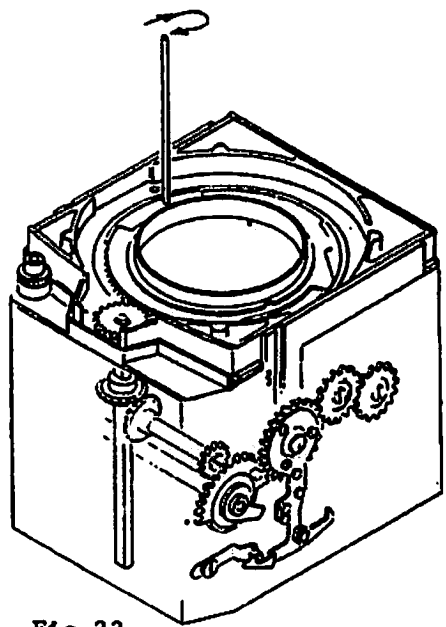


Fig 23

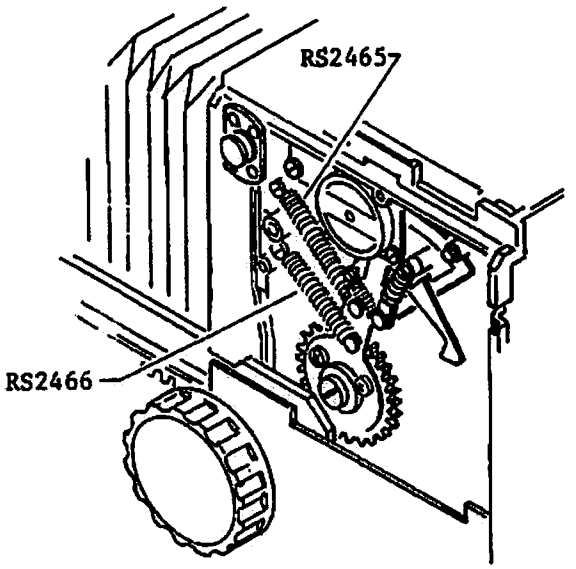


Fig.24

i) Attaching Spring

(1) Attach Spring (RS2465) and (RS2466).

(2) Check raising condition of the mirror holder and the light baffle plate by operating the mirror raising lever.

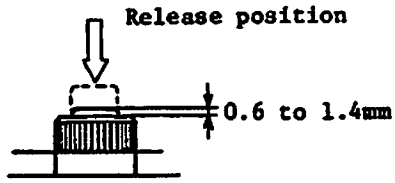
* Do not operate the mirror raising lever only by installing the spring (RS2465, RS2466) without attaching the governer.

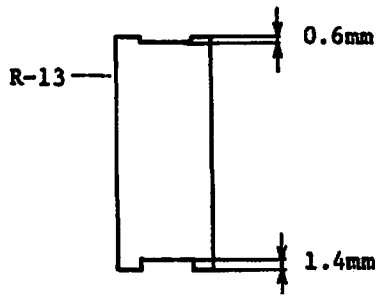
Note : (1) Refer to attaching Bayonet 7-1 b

(2) Refer to Adjusting the position of Shutter cocking ring 2-3 a,b and c.

(3) Check the shutter charging and releasing after attaching lens to the body.

3. Release position of shutter button





(1) Use Shutter release button check gauge(R-13) to check whether shutter release button can be released at 0.6mm side and can not be released at 1.4mm side.

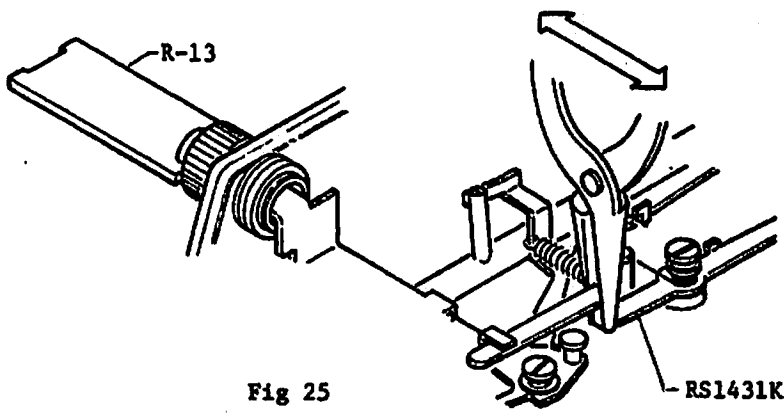
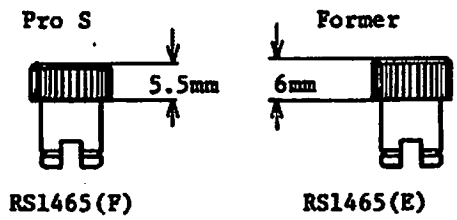


Fig 25

(2) Adjust the release position by bending Release lever(RS1431K2) with a pincers.



RS1465(F) RS1465(E)

NOTE:

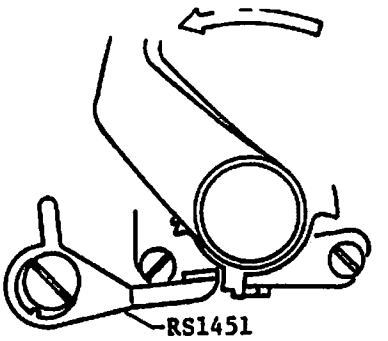
There are 2 kinds of Locking hub (RS1465).
Type (F) for RB67 Pro-S
Type (E) for RB67 only.

4 Resetting prevention mechanism of Cocking lever

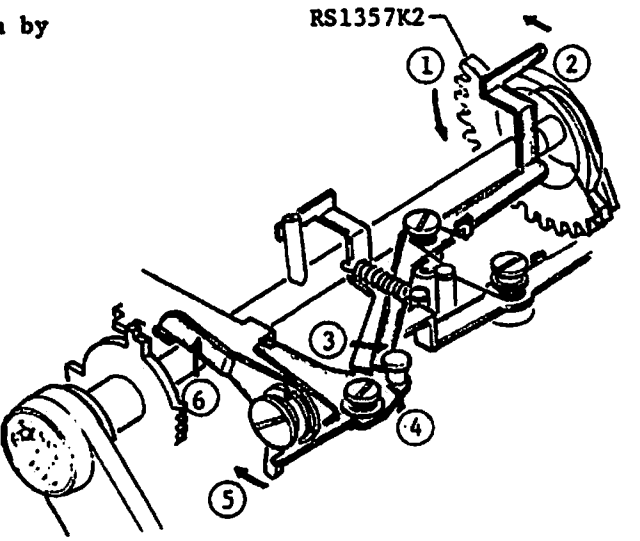
4-1 Operation mechanism

a) Resetting prevention and release

When Shutter cocking lever is pressed down and returned to its original position, Stop lever (RS1451) shall prevent Cocking lever from resetting.

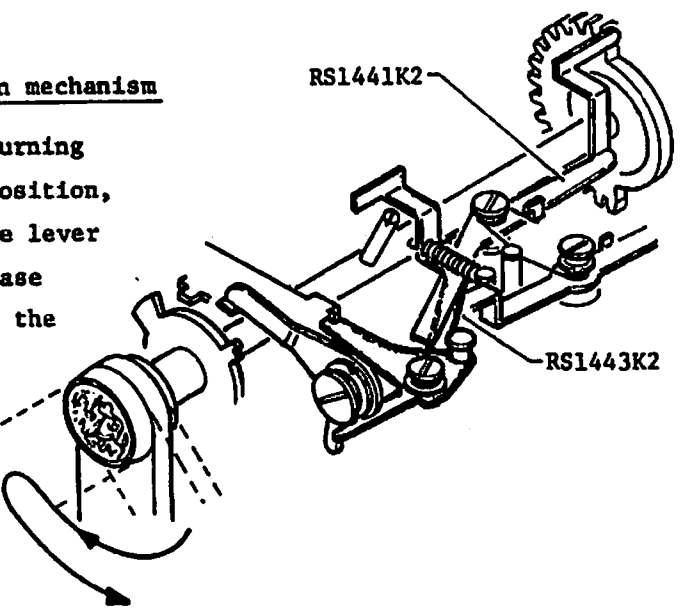


When Shutter button is released, Cocking gear (RS1357K2) turns and relative parts operate in the order of numerals in a circle as shown by the arrow in Fig. 27.
Then Stop lever comes off from Ratchet plate, and Cocking lever can be reset.



b) Shutter release prevention mechanism

When Cocking lever is returning halfway to its original position, operation of Lower release lever (RS1443K2) and Upper release lever (RS1441K2) prevents the shutter button from releasing.



4-2 Adjusting procedure

a) Clearance between Stop lever and Ratchet plate after shutter setting

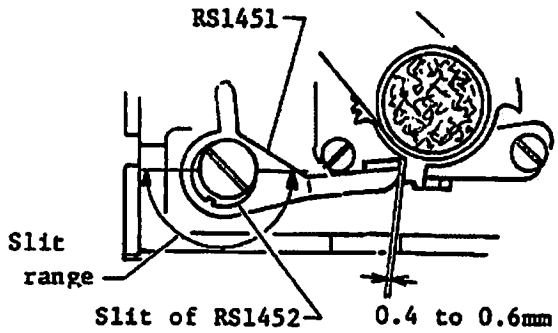


Fig. 29

After setting Shutter cocking lever, clearance between the edge of Stop lever (RS1451) and Rachet plate shall be kept approximately 0.4 to 0.6mm. (Fig. 29)

Clearance can be adjusted by turning Eccentric hub (RS1452).
The slit of Eccentric hub is placed within a range as shown by the arrow. (Fig. 29)

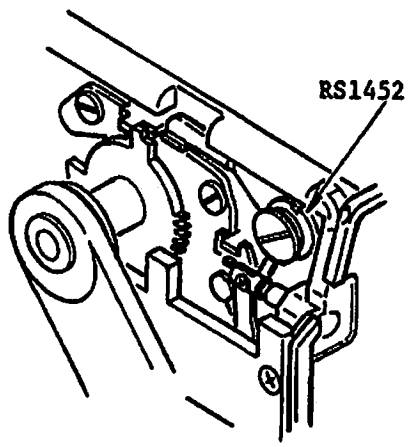


Fig. 30

* After finishing adjustment, Shoulder screw is tightened with a nut inside of the body and glued by adhensive (DB Bond).

NOTE: 1. Shutter button may not release when Cocking lever is returned rapidly exceeding the clearance of less than 0.4mm.

2. Shutter button may not release by a slight touch with a finger on Cocking lever forward exceeding the clearance of more than 0.6mm.

b) Clearance between Stop lever and Ratchet plate , when starting shutter setting

Above clearance shall be kept 0.3 to 0.5mm, when shutter cocking lever starts to set. (Fig. 31)
Adjustment can be done by bending the edge of Stop lever (RS1421K2) with a pincers. (Fig. 32)

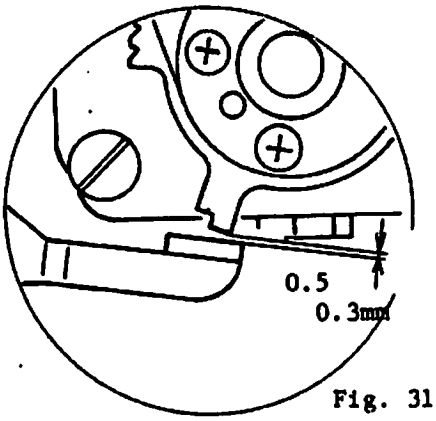


Fig. 31

* When clearance is very little, Cocking lever may not be pressed down perfectly.

* When exceeding more than 0.5mm, Cocking lever may stop half-way with a bounce and shutter button can not be released due to the followings.

  Ratchet plate springs up before Stop lever puts in Ratchet plate.

  Conseqently Ratchet plate is caught by Ratchet pawl.

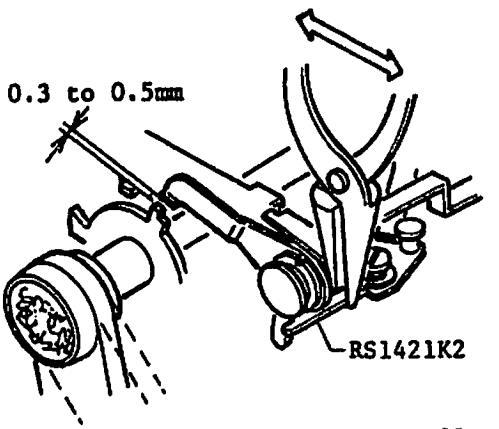


Fig. 32

c) Adjusting Upper release lever (RS1441K2) after shutter setting

Adjust the clearance between Stop lever (RS1421K2) and Upper release (RS1441K2) lever by bending the edge of Upper release lever with a pincers so as to keep 0.5 - 1mm. (Fig. 34)

* After adjusting, confirm the clearance between Stop lever and Ratchet plate by releasing Shutter button.

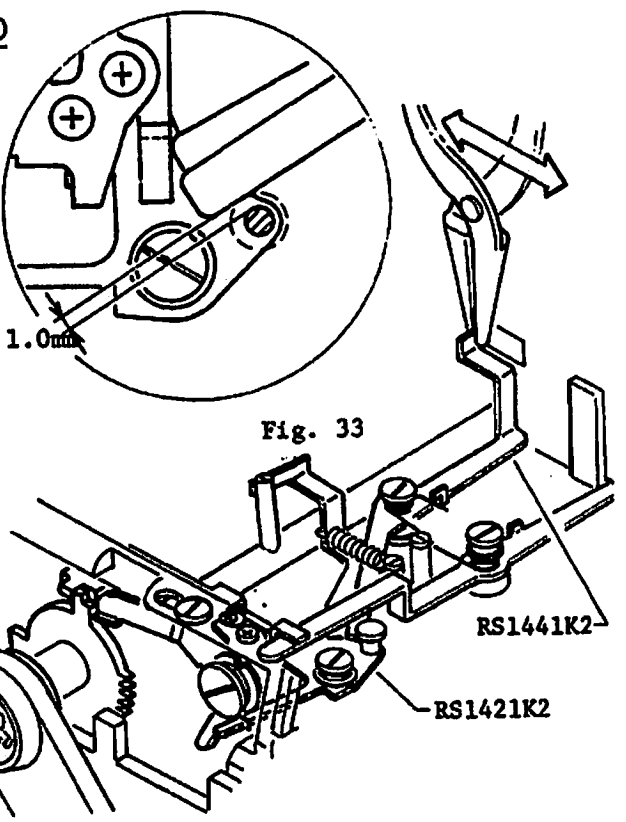


Fig. 33

Fig. 34

Note: Difference of adjusting method between former RB67 and RB67 Pro-S.

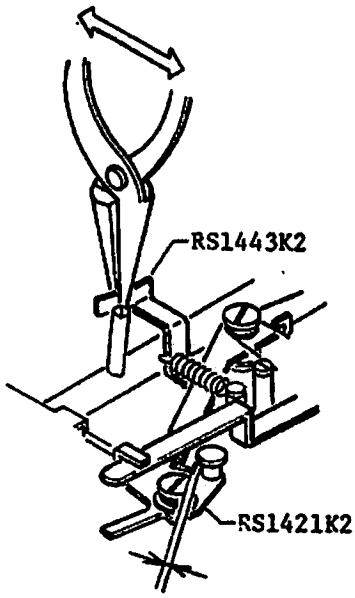
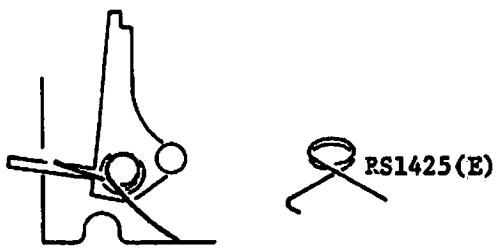


Fig .35

RB67 (Former model)

After setting shutter cocking lever, bend the edge of the Lower release lever (RS1443K2) to keep the clearance of 1 to 2mm from the pin of Stop lever (RS1421K2) by using a pincers as shown in Fig 35.



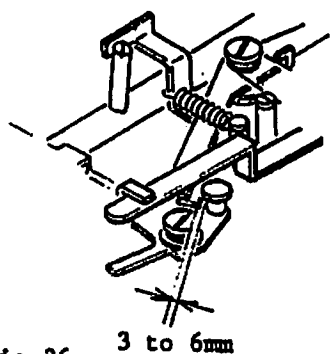


Fig. 36

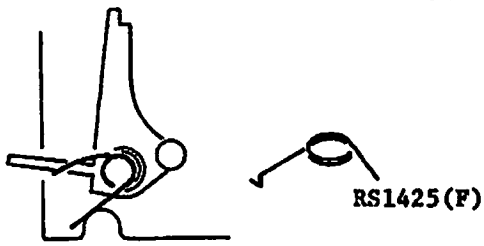
RB67 Pro-S

No Adjustment is needed for Lower release lever.
(Lower release lever is kept approximately 3 to 6mm from the pin of Stop lever.

* Two types of Spring (RS1425) available

RS1425(E) for RB67 (Former model)

RS1425(F) for RB67 Pro-S



5 Replacing Mirror holder and Light baffle plate

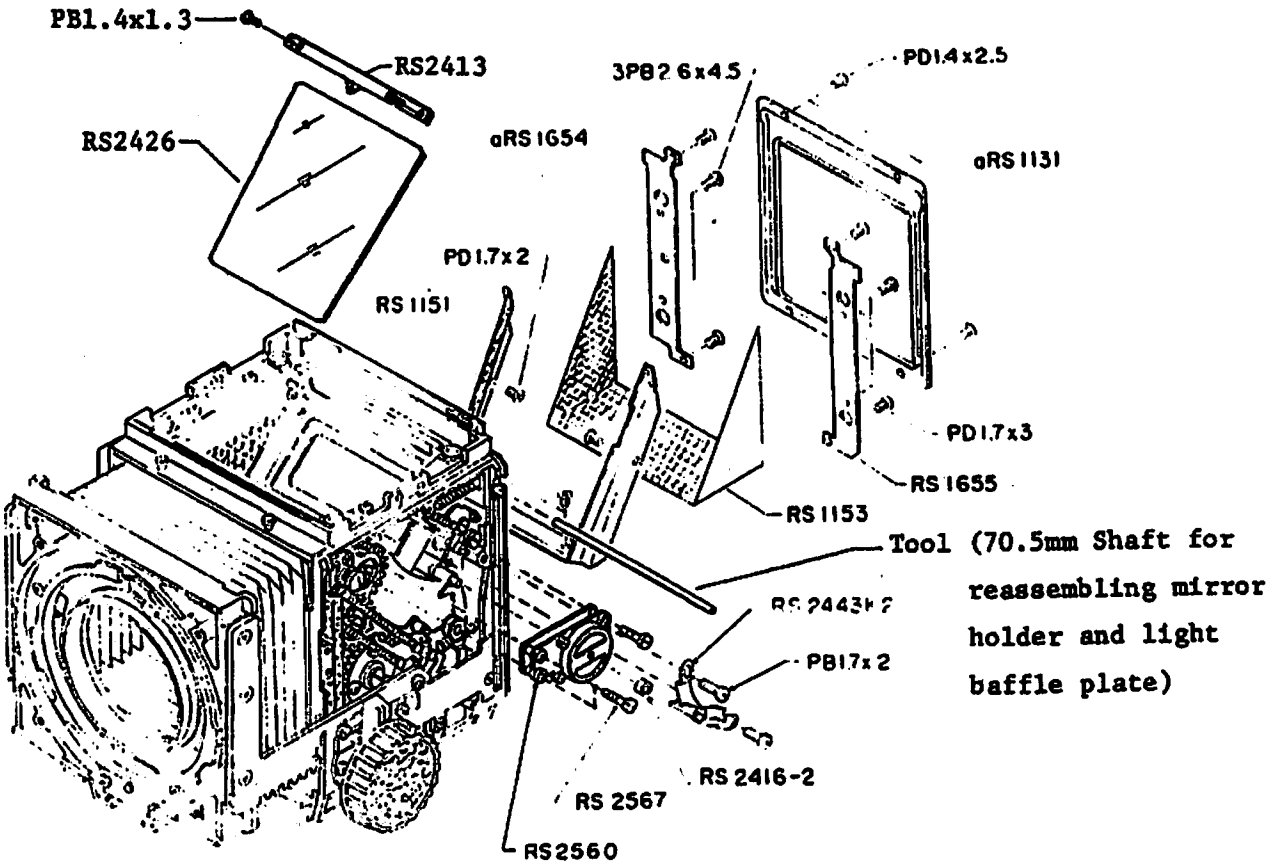


Fig 37

5-1 Removing

(1) Remove above parts keeping Mirror being pressed down.

(2) Insert Tool (71.5mm shaft) for reassembling Mirror holder before removing them.

(3) Remove them as shown in Fig. 38.

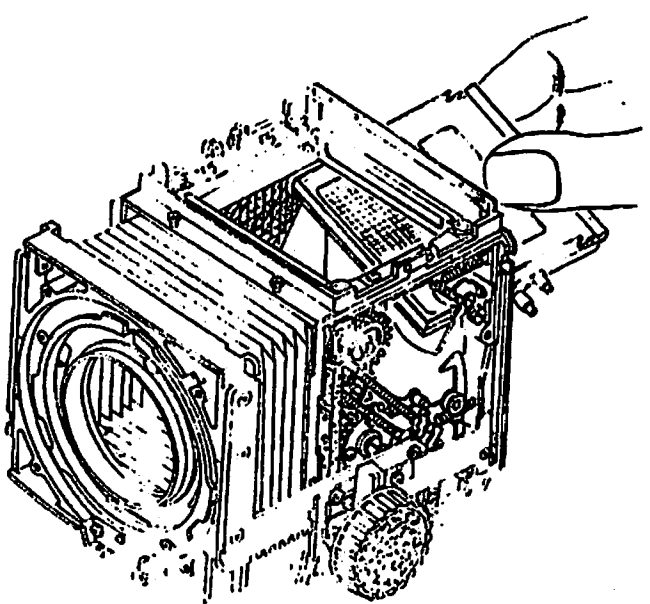


Fig 38

5-2 Attaching

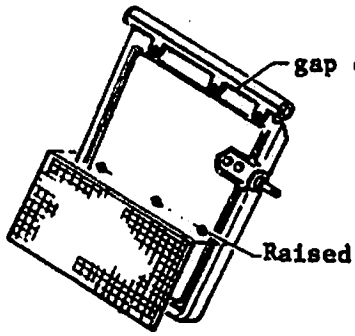


Fig. 39

(1) Fill up gap of rivetted Light baffle plate by glue (DB. Bond), and paint mat lacquer.

(2) The upper end of the mirror curtain is placed to set 3 raised marks.

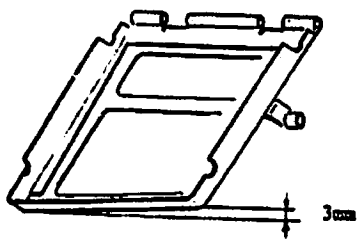


Fig.40

(3) In order to keep the parallel of Mirror holder, the left side of the Mirror holder is bent about 3mm as shown in Fig.40.

(4) Assemble in the reverse order of disassembly.

(5) Replace shaft (RS2421).

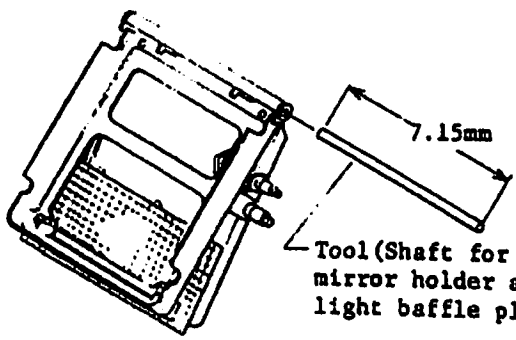


Fig.41

(6) Attach Mirror in the order of the numerals in a circle as shown in Fig. 42.

(7) Mirror holder shall touch Stopper of both sides of the body.

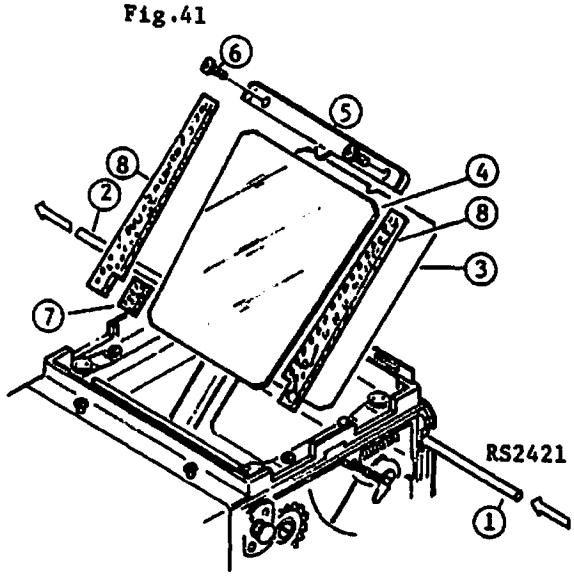


Fig .42

6 Focusing track and focusing knob fixing lever

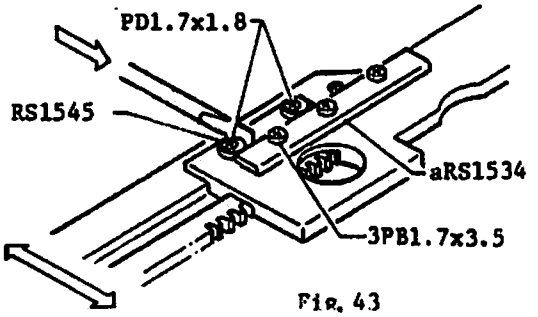


Fig. 43

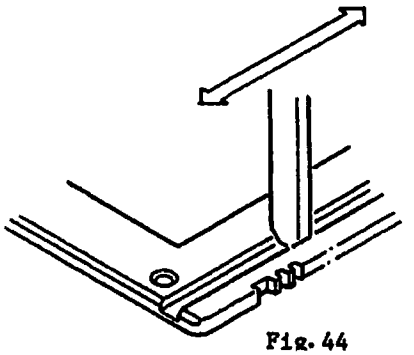


Fig. 44

6-1 Adjusting Rack plate

1. Extend the bellows.
2. Loosen Screw (3PB1.7x3.5).
3. Adjust the play and movement of the focusing track.
4. Tighten Screw (3PB1.7x3.5).
5. Support Screw (PD1.7x1.8BNi) with Eccentric collar (RS-1545) and tighten them.

NOTE: Use Screw lock to Screw (3PB1.7x3.5) and High lock S2 to Screw(PD1.7x1.8).

Before substituting Rack plate for new one, plane the edges of the groove by approximately 0.1mm. (Fig. 44)

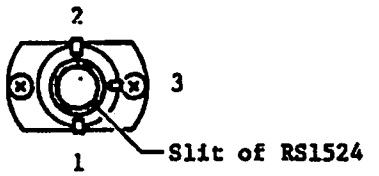


Fig. 45

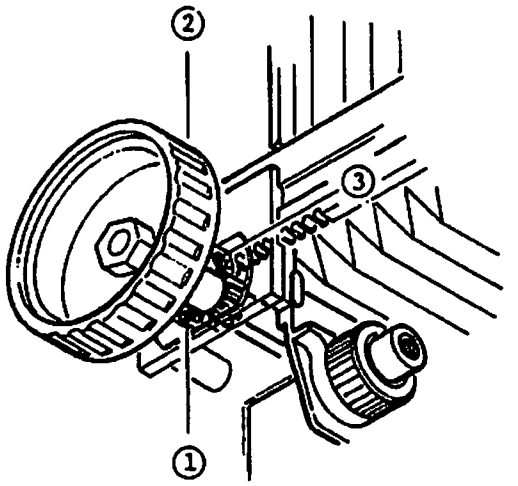


Fig.46

6-2 Adjusting Focusing track

1. Slit of Pipe (RS1524) is positioned to the direction as shown in Fig.45.
2. Adjust the mesh for Pinion shaft and Rack plate by fixing screws ① and ②.
3. Adjust the longitudinal play and torque of Pinion shaft by fixing screw ③.

6-3 Adjusting Focusing knob fixing lever

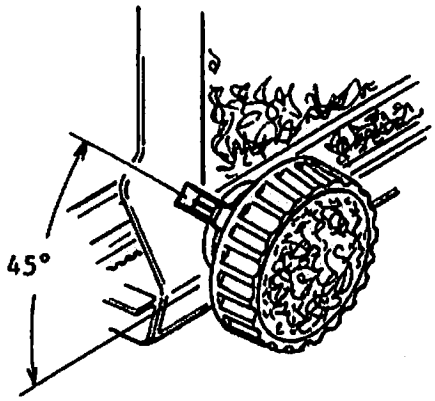


Fig.47

Focusing knob fixing lever shall operate at approximately 45 degrees as shown in Fig.47.

Adjustment

1. Remove Focusing knob.
2. Use Washer (6WxO.05, 0.1 and 0.2) to adjust the position of Focusing knob fixing lever.

Washer (6Wx0.1) changes the angle of Focusing knob fixing lever approximately 45 degrees.

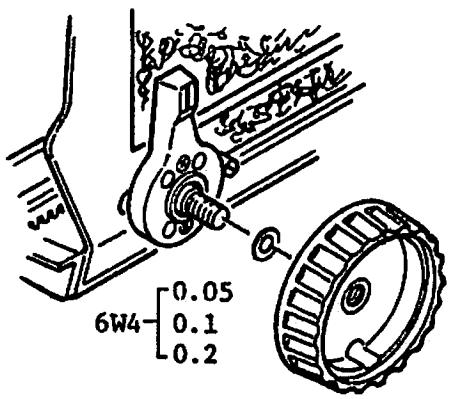


Fig.48

3. In case above method fails to adjust turn Setting ring (aRS-1486) or change the hole position of Setting lever (aRS-1481K2) after removing Screw (PD1.7x4.5BNi).

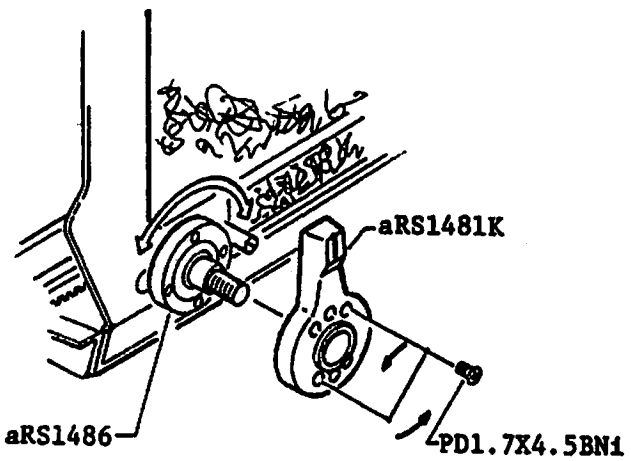


Fig.49

7 Body flange back and focus of view finder

7-1 Adjusting Body length

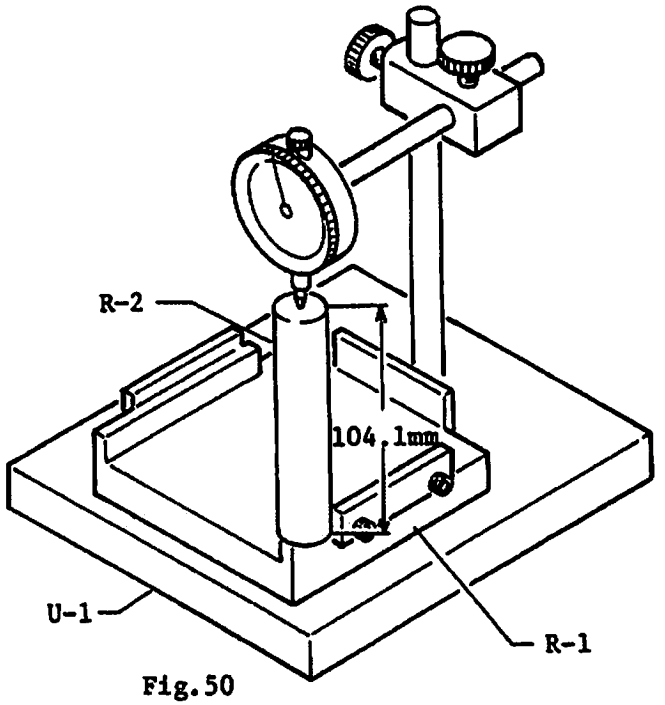


Fig.50

a) Setting Measuring Instruments

1. Place Camera body supporter(R-1) on Measuring instrument with dial gauge (U-1) and Standard gauge bar (R-2) on Camera body supporter (R-1).
2. Align the "0" on hand of dial with the hand.
3. Take Standard gauge bar off Camera body supporter.

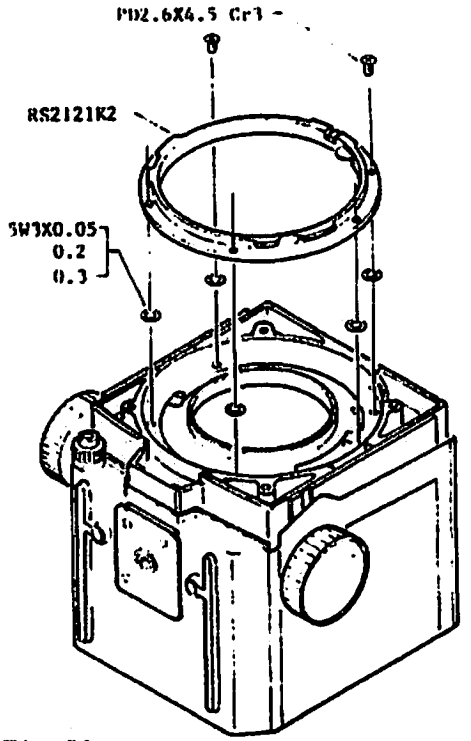


Fig.51

b) Attaching Bayonet

1. Attach Bayonet (RS2121K2)
2. Tighten 4 pieces of Screw (PD2.6x4.5cr3).
3. Place the Camera body on body supporter and parallel disc gauge (R-3) on Bayonet.

c) Adjusting parallelism

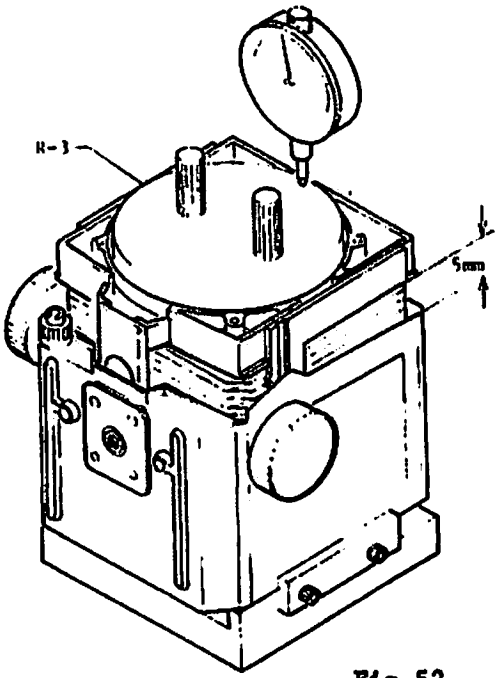


Fig.52

1. Extend the bellows by approximately 5mm.
2. Measure the parallelism at four corners. Parallelism at four corners shall be less than 0.1mm. Use Washer to adjust parallelism. (5W3x0.05, 0.2 and 0.3) as shown in Fig. 51, 52.

d) Adjusting infinity of Body length

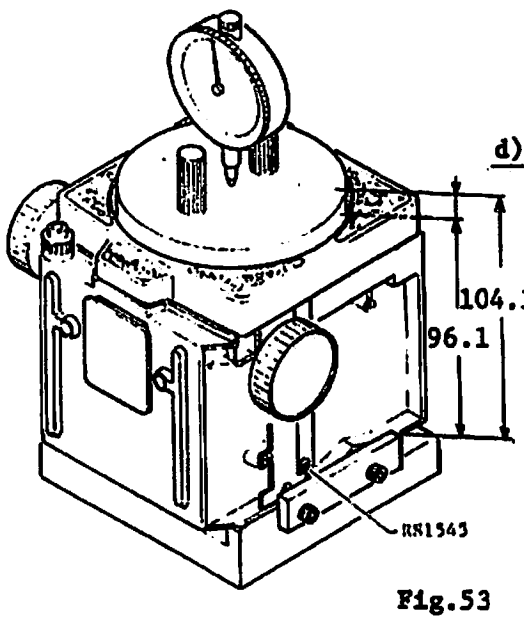


Fig.53

1. Retract the bellows fully (infinty).
2. Measure the Body length at the center of Parallel disc gauge.
   The Body length is 96.1mm
   Use Eccentric stopper (RS-1545) to adjust the flange back.

NOTE: Both sides of Eccentric stopper shall hit with Guide plate simultaneously.

7-2 Adjusting focus of the view finder

(1) Attach Focus checking ground glass frame (R-8) to the back of the camera body.

(2) Set the chart at a distance of 1-3 meters.

(3) Attach the lens to the camera.

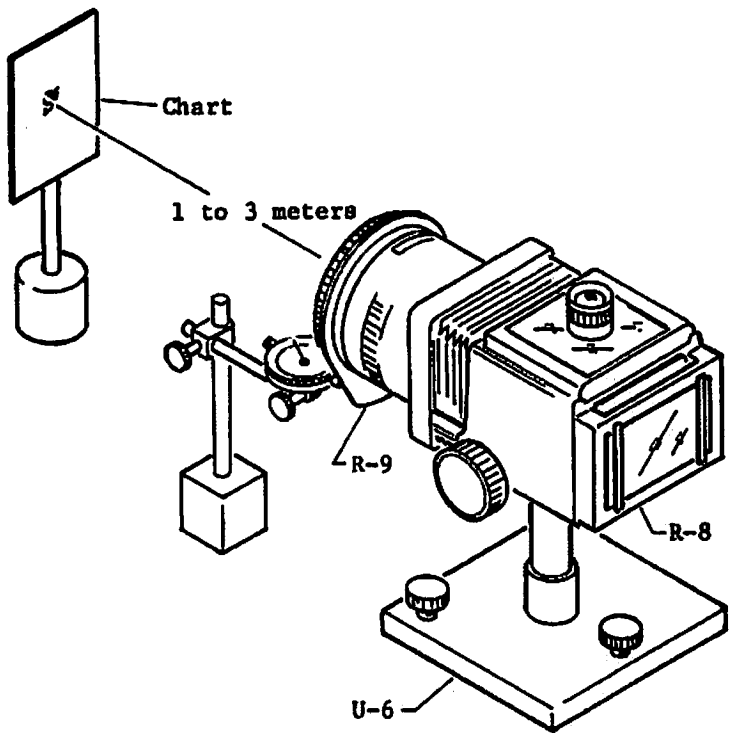


Fig.54

(4) Attach Focus checking plate and ring (R-9) to the lens.

(5) Place the camera on Camera body supporter (U-6).

(6) Set Dial gauge with supporter.

(7) Raise the mirror and focus on the chart while looking on the center of ground glass frame (R-8) then set the "0" point of the dial gauge.

(8) Press down the mirror and focus on the chart while looking on the center of the focusing screen.

In this case dial gauge reading must coincide with "0".

In case dial gauge reading on does not coincide with "0", adjust the focus by equally turning.

Adjusting screw(RS2623) with adjusting driver (R-18).

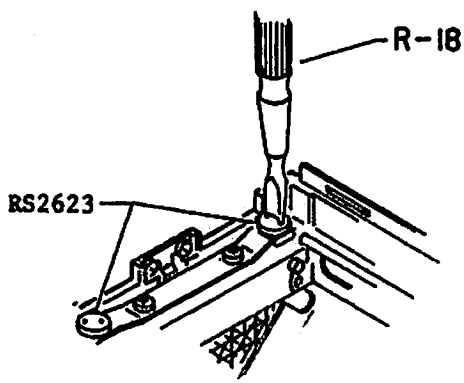


Fig.55

* 1/4 turn of Adjusting screw shifts the focus by 0.1mm.

Note: Adjusting method without Dial guage

Turn Adjusting screw equivalently with Adjusting driver so as to coincide focusing on Ground glass frame with that on Focusing screen.

NOTE: Focal point and Film guide rail position

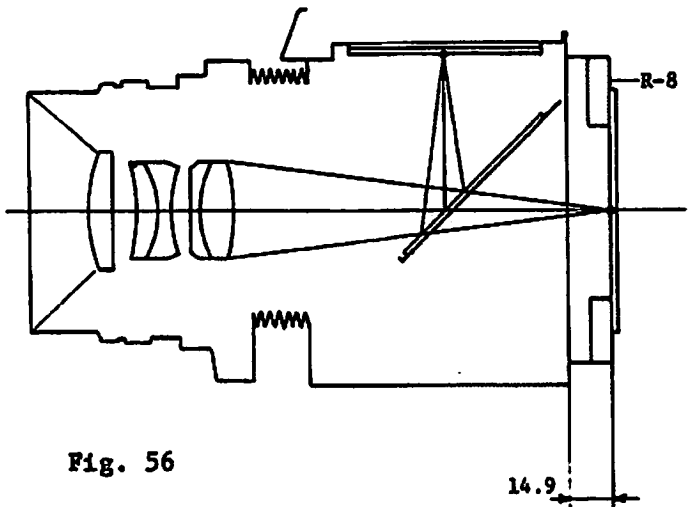


Fig. 56

1. Tool (R-8) Focusing Checking ground glass frame

Lens flange back is on Ground glass of Tool (R-8).

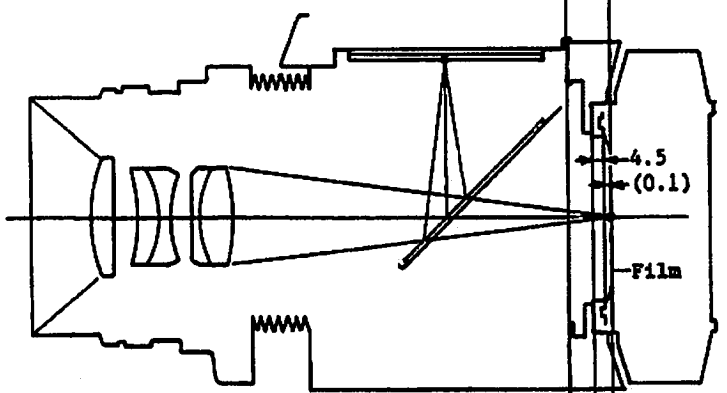


Fig. 57

2. Pro-S Roll Film Holder

Film surface is 0.1mm shifting in thedirection of rear side from Film guide rail

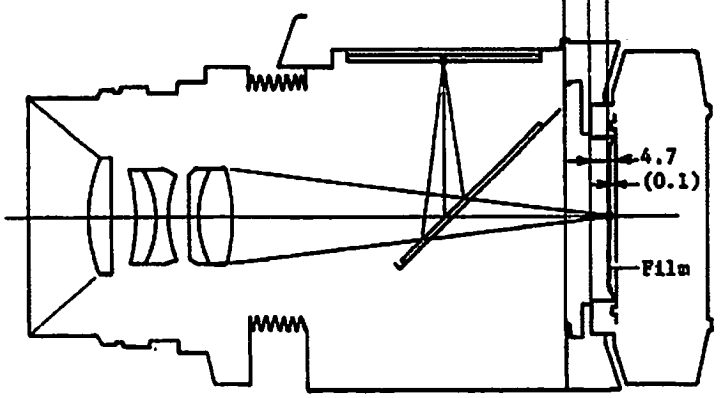


Fig. 58

3. Roll Film Holder (Former model)

Film surface is 0.1mm shifting in the direction of front side from Film guide rail

* Use Tool (R-8) Focusing checking ground glass when adjusting Focusing.

8 Horizontal picture format indication mechanism

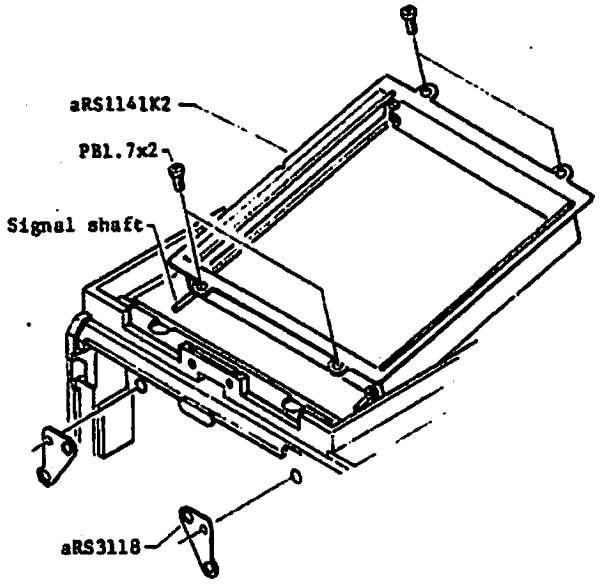


Fig. 59

8-1 Attaching Frame for Red bar assembly (aRS1141K2)

(1) Attach above Frame with 4 pcs. of of Screws (PB1.7x2).

(2) Attach 2 pcs. of Plate (aRS3118) so that Red signal bar moves slightly.

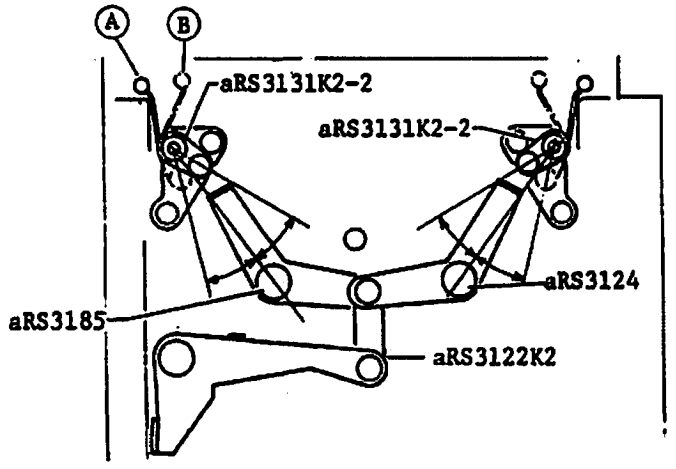


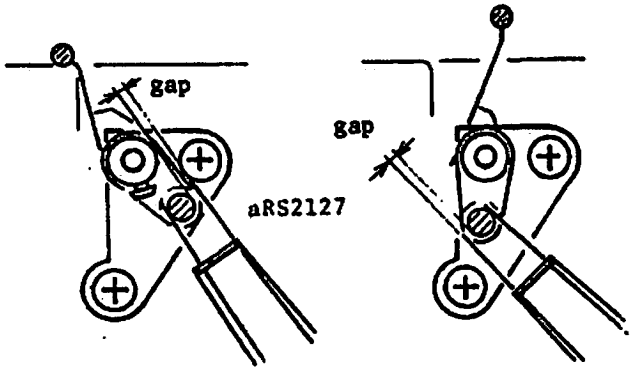
Fig. 60

8-2 Attaching Marking lever (aRS3131K2 1,2)

(1) At vertical and/or horizontal position 2 pcs. of Marking lever are positioned so that Red signal bar moves to both sides equivalently against the center lines of Shoulder screw (aRS3124) and Shaft (aRS3185) from each shaft of Red signal bar.

(2) Insert 0.1mm thick plate temporarily between Plate (aRS3118) and Marking lever when attaching Marking lever.

(3) Check Retaining spring (aRS3127) so as to leave gaps equally both at the vertical and horizontal positions by turning Revolving adapter as shown in Fig. 61.



8-3 Adjusting Red signal bar

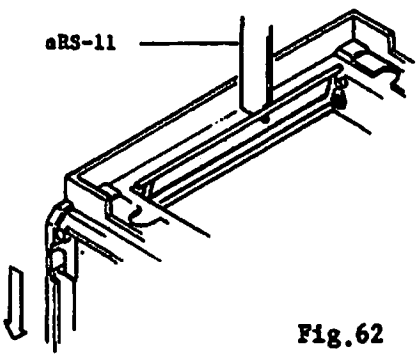
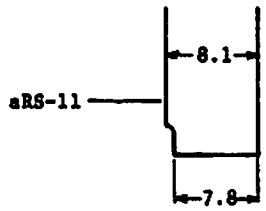
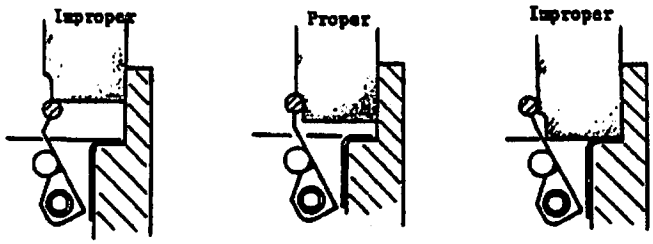


Fig.62

(1) Turn the revolving adapter to the horizontal position.

(2) Check the position of Red signal bar with Gauge for Red signal bar (aRS-11) as shown in Fig. 62.





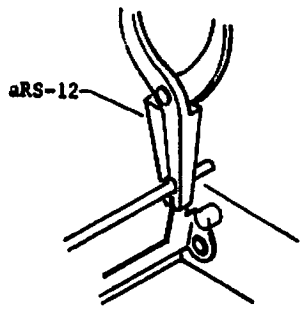


Fig.63

(3) Bend arm with Adjusting pincers (aRS-12) as shown in Fig. 63

(4) Check the position and movement of Red signal bar turning the revolving adapter to the horizontal position.

* Apply glued adhesive (Epoxy) to Red bar (aRS3111) when Red signal bar is out of place.

9 Releasing mechanism of Film winding stop

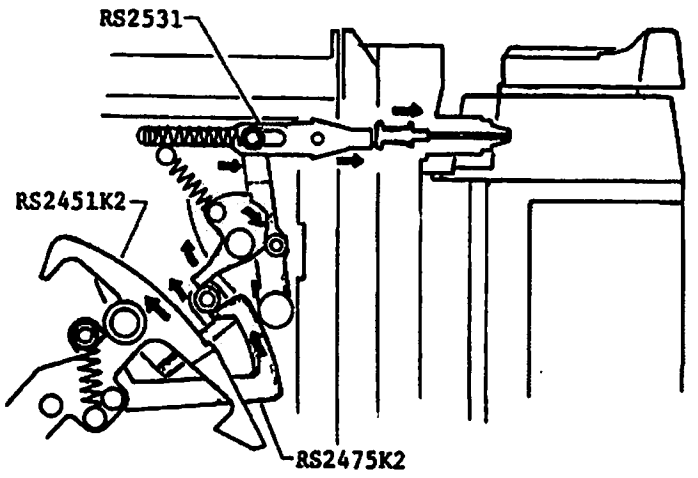


Fig. 64

9-1 Operation of Film winding stop mechanism

a) Horizontal position

Operation of mirror raising lever (RS2451K2) and Light baffle plate lever (RS2475K2) makes relative parts operate in the order of the arrow.

Then Coupling arm, right (RS2531) moves. (Fig. 64)

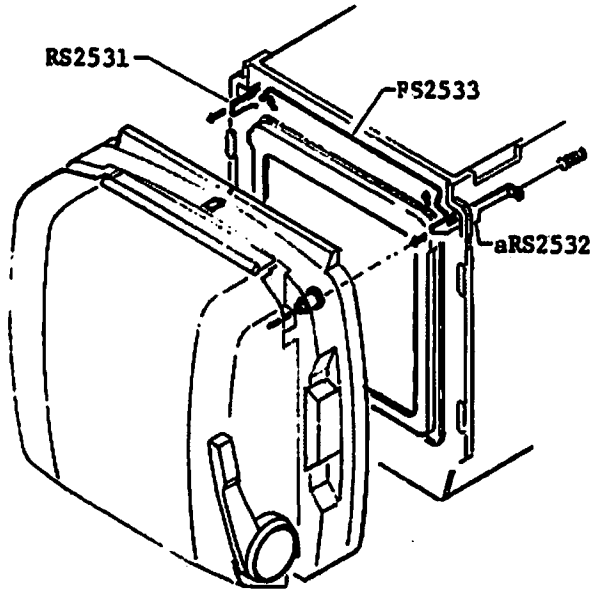


Fig. 65

b) Vertical position

In the above connection, Coupling plate, right (RS2531) links up with Coupling rod (RS2533) and Coupling arm, left (aRS2532).

9-2 Checking and adjusting Releasing mechanism of Film winding stop

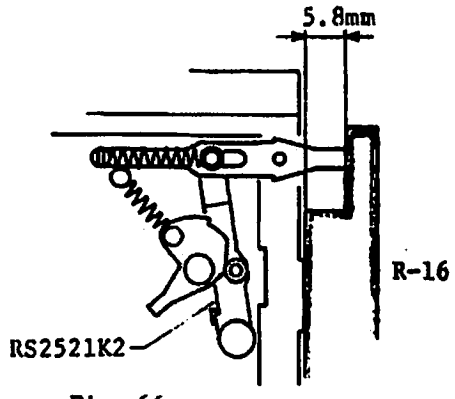


Fig. 66

a) Adjusting positions and operation of Coupling arm, right (RS2531)

(Horizontal position)

Rest position

Use 5.8mm side of Coupling lever check gauge (R-16) to check the limit of 5.8mm.

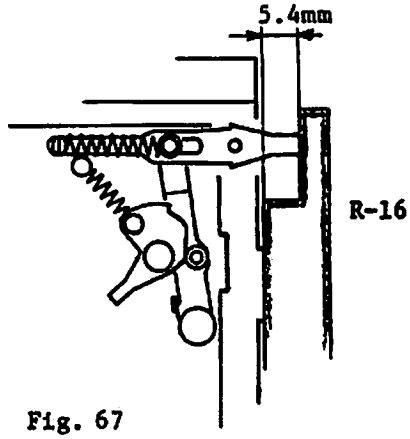


Fig. 67

Pushing position

(1) Use 5.4mm side of the gauge (R-16) to check the limit of less than 5.4mm.

(2) Confirm the smooth operation of Mirror keeping the gauge being attached.

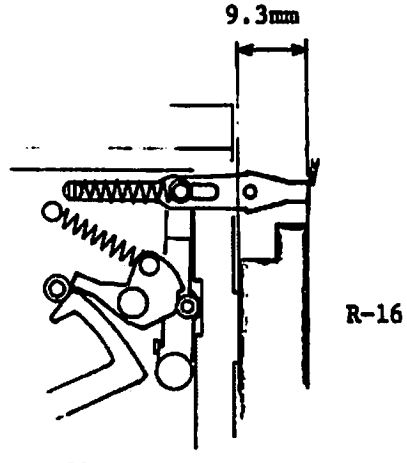


Fig. 68

Working length

Use 9.3mm plate of the gauge to check the limit of move than 9.3mm.

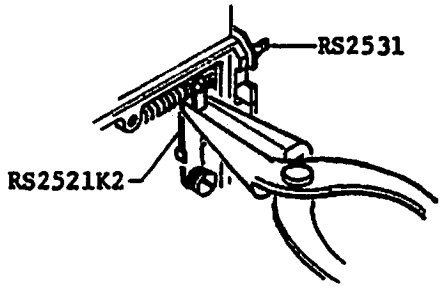


Fig. 69

When failing to satisfy above three limits, bend Signal lever (RS2521K2) with a pincers.

b) Adjusting positions and operation of Coupling arm, . left (aRS2532)

(Vertical position)

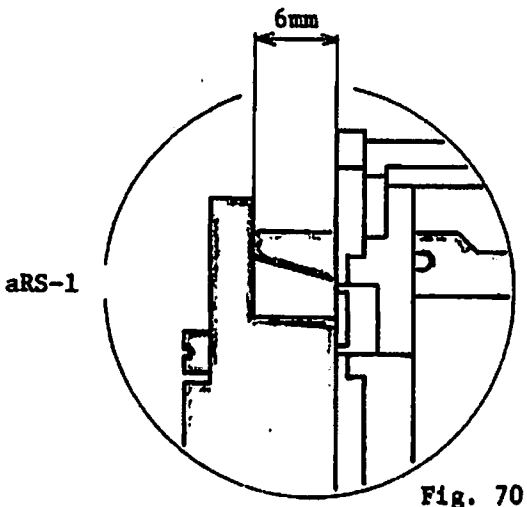


Fig. 70

Rest position

Use Jig for vertical and horizontal position (aRS-1) to check the limit of 5.9 to 6.1mm.

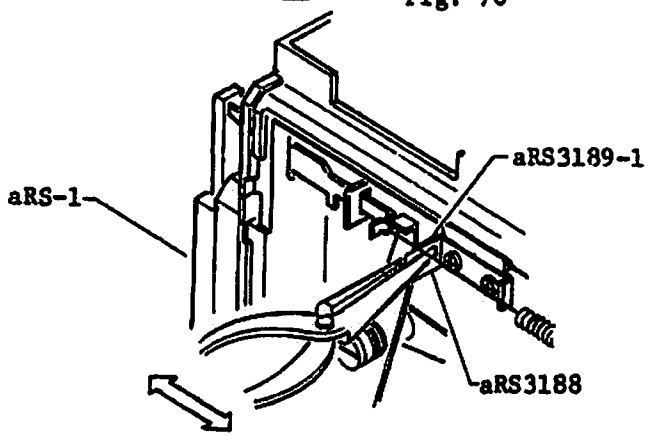


Fig. 71

For adjustment bend Stopper (aRS3189-1) and Setting spring (aRS3188) with a pincers.

Use 9.3mm plate of the gauge to check the limit of more than 9.3mm,

Working length

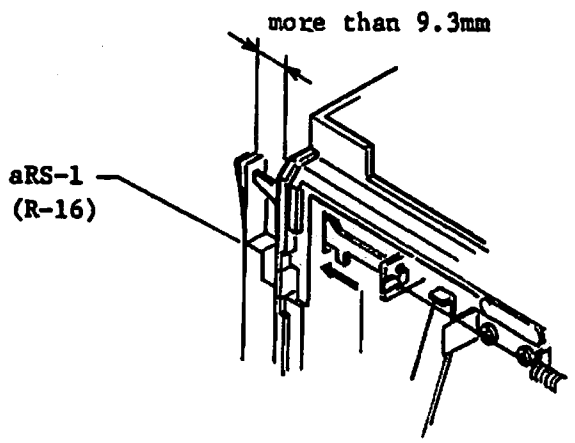


Fig. 72

* After adjusting, check the double exposure preventive mechanism referring to Item 10 Double exposure prevention mechanism at page 30.

9-3 Checking Coupling pin for film wind-stop releasing of Revolving adapter

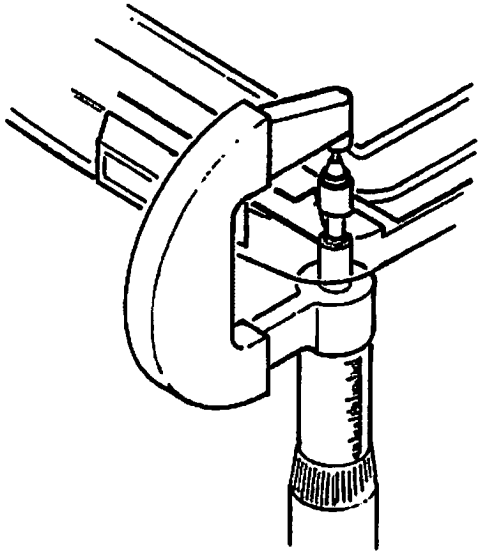
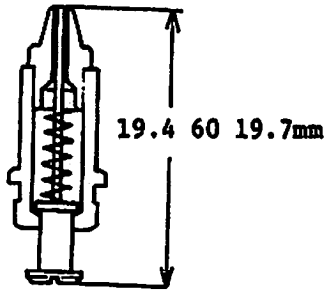


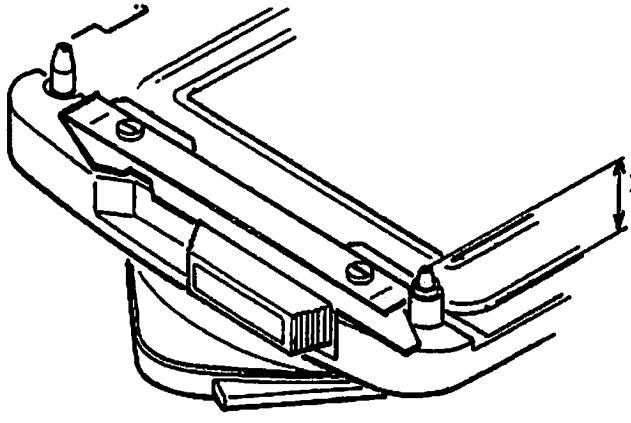
Fig. 73

(1) Length of Coupling pin assembly (RS1271K2) is 19.4 to 19.7mm.



6 8gr

(2) The length from the surface of polished guide rail of Revolving adapter to the top of Coupling pin is kept 15.4 to 16.0mm.



(3) Coupling pin shall move slightly by the weight of 6 to 8gr.

Fig. 74

9-4 Checking Film winding stop with Roll film holder attached

Check Film winding stop release attaching a film loaded PRO-S roll film holder to the camera at horizontal and vertical position.

10 Double Exposure Prevention Mechanism

10-1 Operation of double exposure prevention mechanism

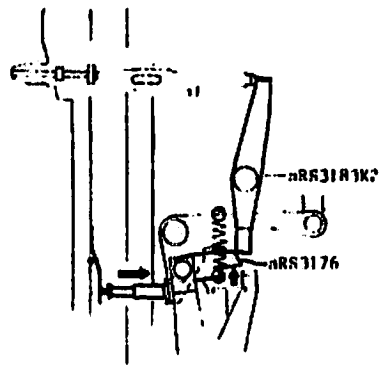


Fig. 75

a) Horizontal position

(1) Coupling plate (aRS3176) is connected with No. 3 lever (aRS3183K2). (Fig. 75)

(2) The Arabic numerals in a circle and the arrow indicate the continous operation of Coupling plate 6 due to Shutter button release.

Then, Coupling plate pushes Coupling pin of Revolving adapter.(Fig. 76)

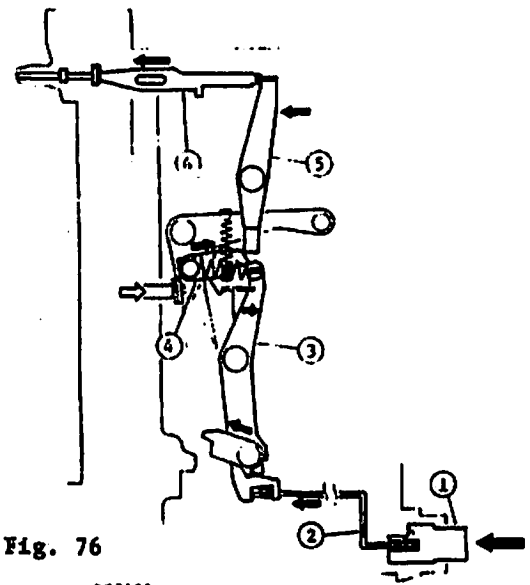


Fig. 76

(3) When the film-loaded Roll film holder is not wound, Double exposure preventive plate sticks out and stops Coupling pin of Revolving adapter.

(4) In above condition, Spring (aRS3172) is extended by pushing the shutter button more deeply, and Stop plate Ⓑ hits Body lug Ⓒ Consequently, shutter button can not be releasad and double exposure is prevented. (Fig. 77)

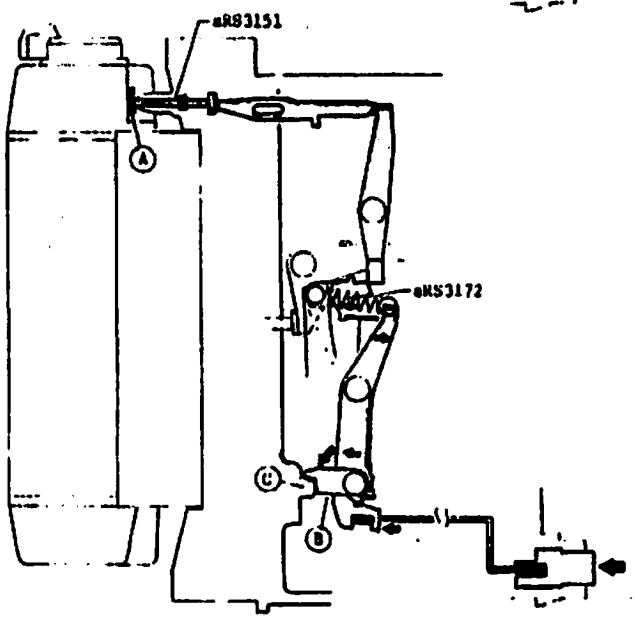


Fig. 77

b) Vertical position

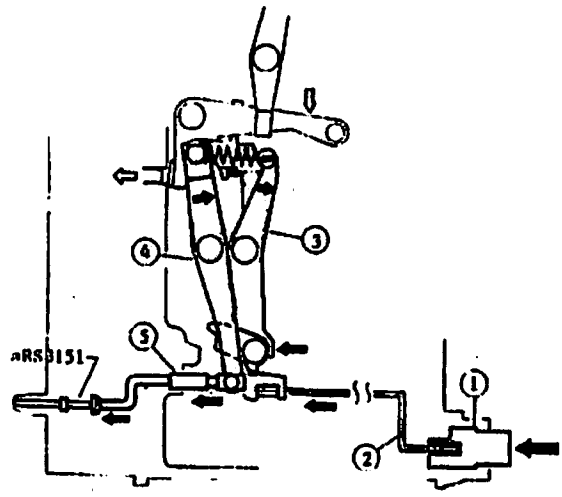


Fig. 78

(1) The Arabic numerals in a circle and the arrow indicate the continuous operation of Linking nut 5 due to Mirror setting and Shutter button release.

Then, Coupling plate pushes Coupling pin of Revolving adapter. (Fig. 78)

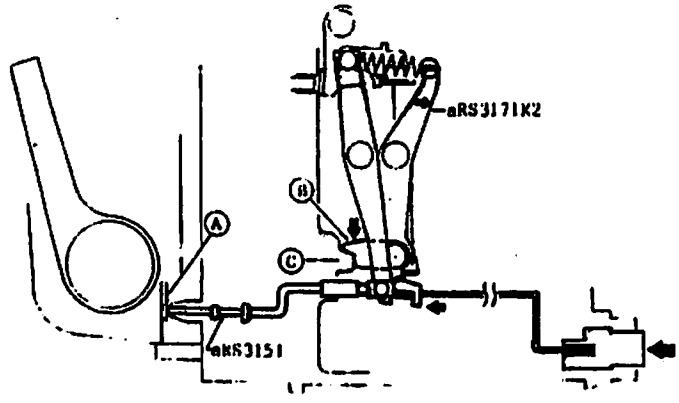


Fig. 79

(2) When the film-loaded Roll film holder is not wound, Double exposure preventive plate sticks out and stops Coupling pin of Revolving adapter. (Fig. 79.)

(3) In above condition, Spring (aRS3172) is extended by pushing the shutter button more deeply, and Stop plate B hits Body lug C. Consequently, shutter button can not be released and double exposure is prevented.

10-2 Adjusting method of Double-exposure prevention mechanism.

a) Adjusting clearance between Stop lever and Body lug

The clearance between Stop lever and Body lug shall be kept 0.05 to 0.1mm, when the shutter button is being released. (Fig. 80)

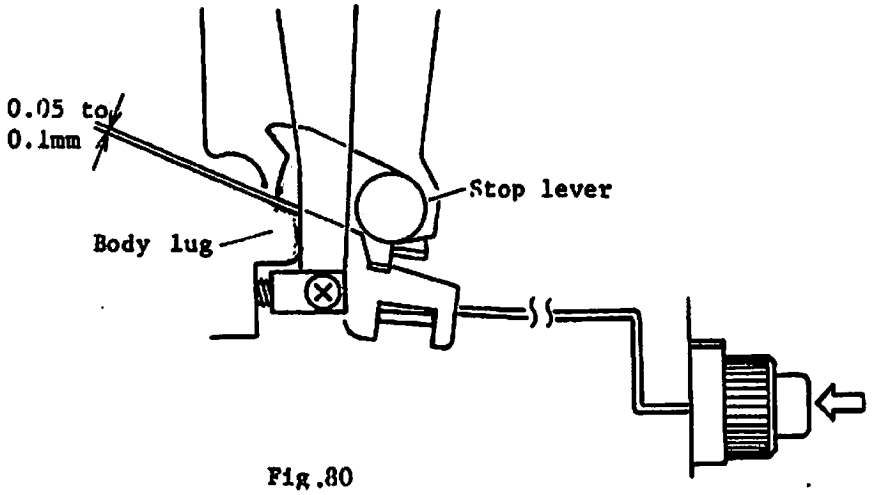


Fig.80

* Adjust the clearance by banding the edge of No. 1 lever (aRS3168) as shown in Fig. 81.

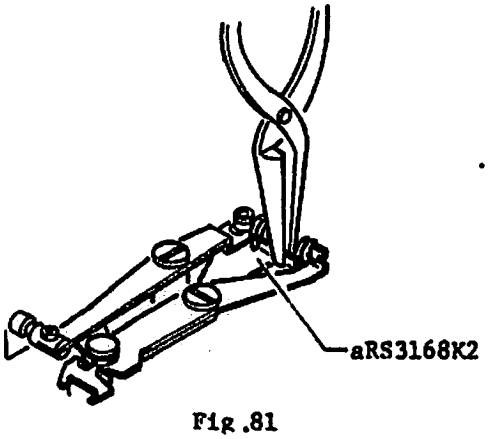


Fig.81

b) Adjusting stroke clearance of Stop lever

Clearance between Stop lever and lug of Body shall be kept 1.7mm as shown in Fig. 82.

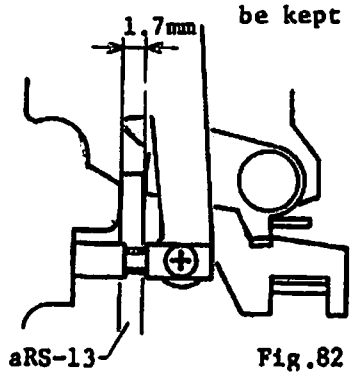


Fig.82

Adjustment

(1) Loosen Set screw 1 , 2 and 3 for Release plate supporter (aRS1416) fastened with Release plate (aRS1411) as shown in Fig. 83.

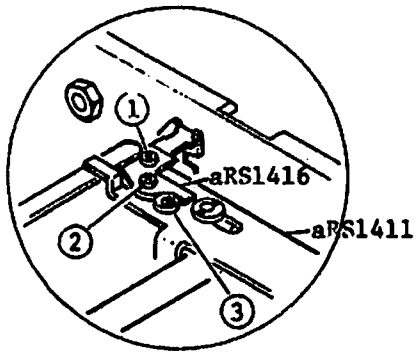


Fig.83

(2) Insert Stop lever clearance gauge (aRS-13) into the lug of the body and Stop lever, then move Release plate supporter (aRS1416) so that the shutter button does not work.

(3) Tighten Set screw 1 and 2.

(4) Support Set screw 3 with Eccentric stopper (RS1545) and tighten it.

(5) Check the clearance (1.7mm).

(6) Apply Screw lock to Set screw 1 , 2 and 3.

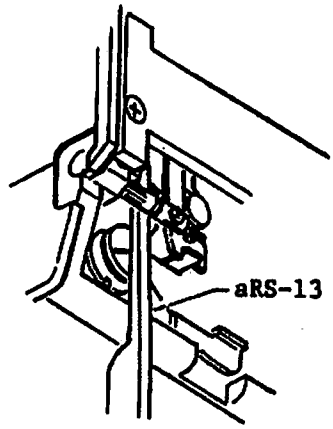


Fig.84

(7) Use a pincers to tighten the edge of Sub lever (aRS1416) so as not leave gaps between the edge of sub lever and Release plate supporting (aRS1516) as shown in Fig. 85.

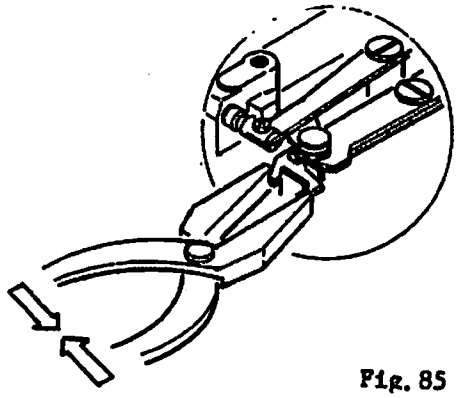


Fig. 85

c) Adjusting Release lock linking nut

Release lock linking nut (aRS1471) is coupled properly with double exposure prevention mechanism of Revolving adapter.

At vertical and horizontal positions, adjustment can be done by turning the Nut so that it comes in slight touch with pin of Release lock bar adjusting tool (aRS-2). Then fix Release bar with a small amount of DB Bond. (Fig. 86)

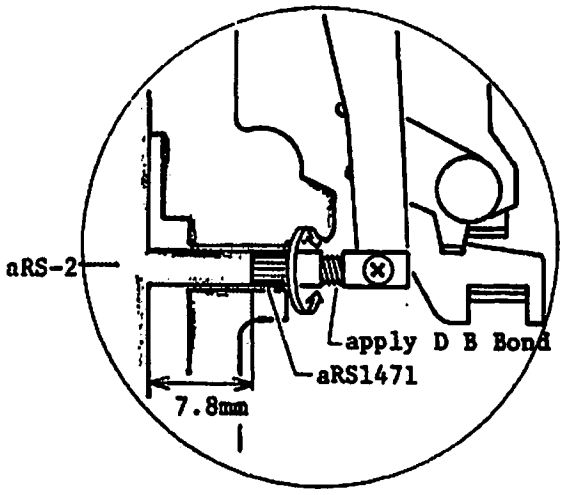


Fig. 86

Improper

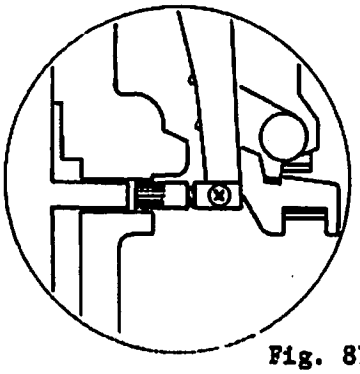


Fig. 87

* When there is gap between Release lock nut and the pin of Tool, double exposure prevention mechanism does not work perfectly. (Fig. 87)

Improper

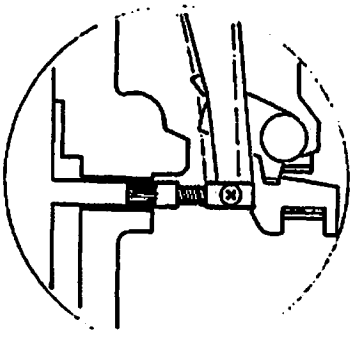


Fig. 88

* When the pin of Tool pushes Release lock nut exceedingly, Revolving adapter may not turn. (Fig. 88)

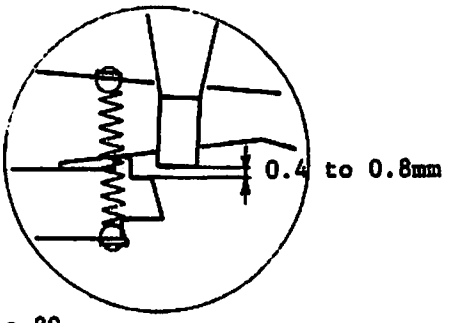


Fig. 89

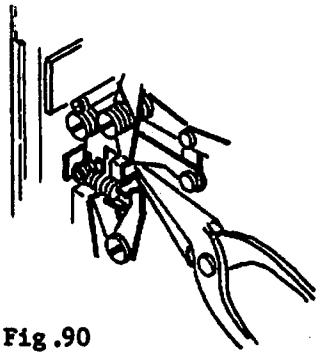


Fig.90

d) Adjusting turnover of double exposure preventive mechanism at horizontal and vertical position

1 Vertical position

Clearance between Coupling plate (aRS3176) and No. 3 lever (aRS3183K2) is kept 0.4 to 0.8mm (Fig. 89)

Adjustment can be done by bending the edge of No. 3 lever lengthwise with a pincers. (Fig. 90)

2 Horizontal position

Check the connection of Coupling plate and No. 3 lever as shown in Fig. 91.

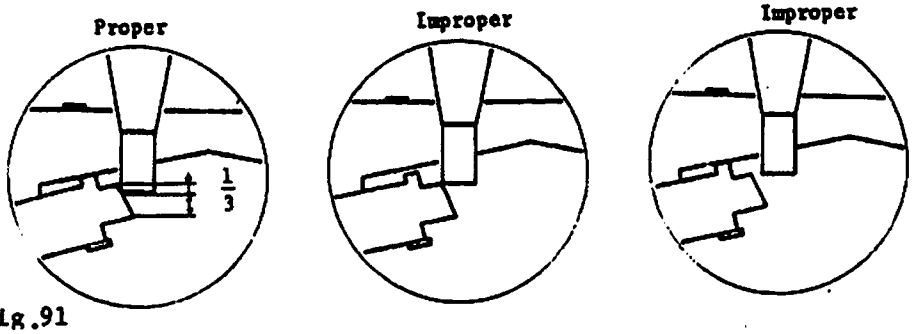


Fig.91

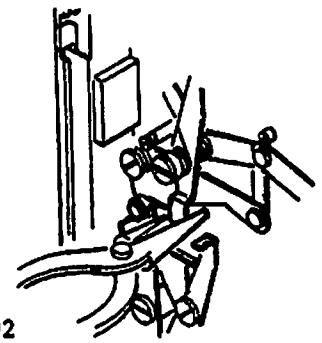


Fig.92

Adjustment can be done by turning the edge of No. 3 lever transversely. (Fig. 92)

After checking, turn Revolving adapter for several times and confirm their fitting.

e) Checking Safety lock of Shutter release button

(1) Horizontal position

1. Attach Release lock positioning guage (aRS-3) or Pro-S Roll film holder to the body, and set it at horizontal position.
2. Set the Mirror and push Shutter button by using Lock positioning gauge (aRS-14).
3. Push the shutter button and confirm that Shutter button can not be released. (Fig. 93)

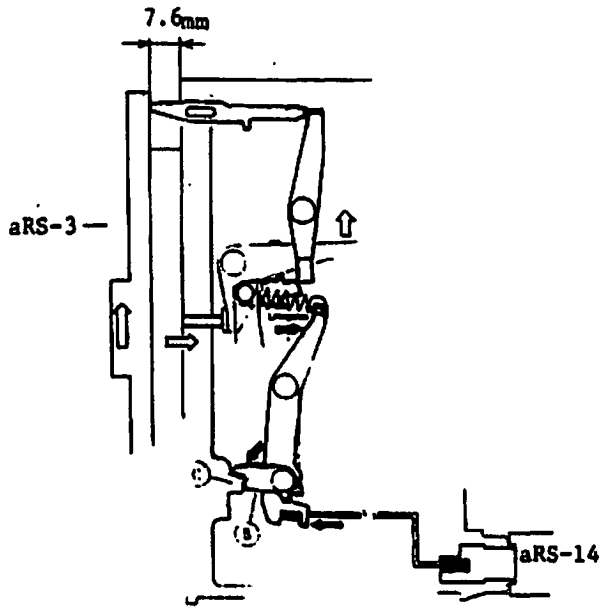


Fig 93

(2) Vertical position

Procedures are almost same as above-mentioned with the exception that Gauge (aRS-3) is set at vertical position . (Fig. 94)

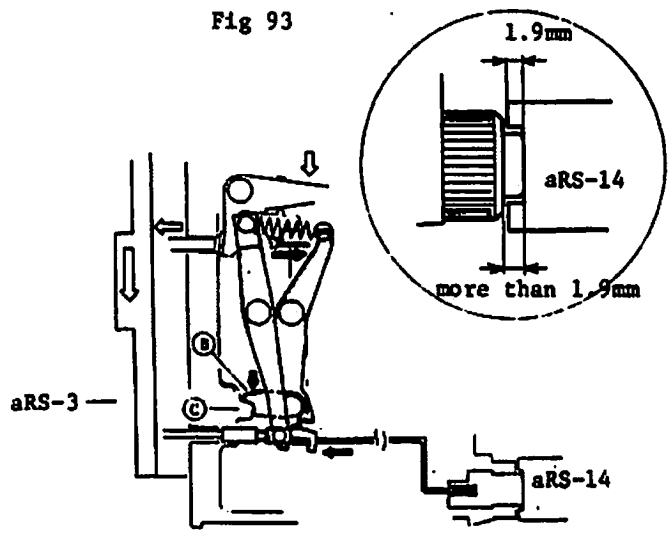


Fig 94

10-3 Checking Revolving adapter Coupling pin for double exposure prevention

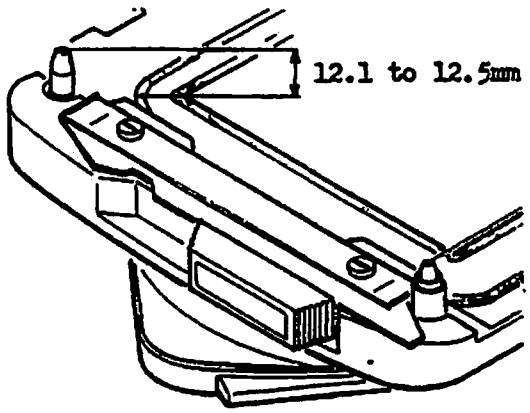


Fig .95

(1) The length from the surface of polished guide rail of Revolving adapter to the top of Coupling pin (aRS3151) is kept 12.1 to 12.5mm. (Fig. 95)

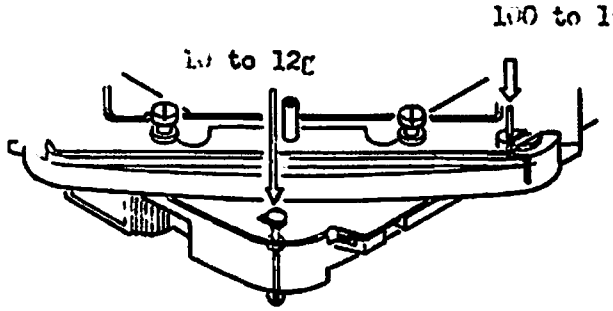


Fig .96

(2) Signal pin shall move half-way by weight of 10 to 12g, and turn back slightly (Fig. 96)

(3) Release lock bar (aRS1261) shall move half-way by weight of 100 to 150g, and turn back smoothly. (Fig. 96)

11. Others

11-1 Adjusting Operation of Focusing Hood

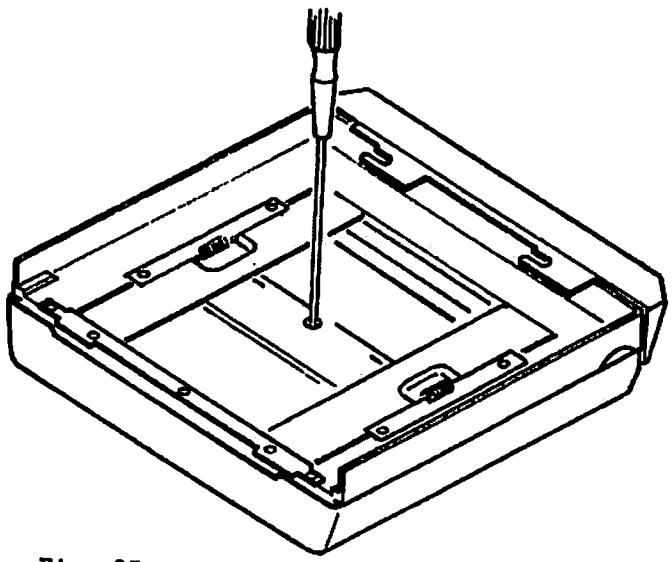
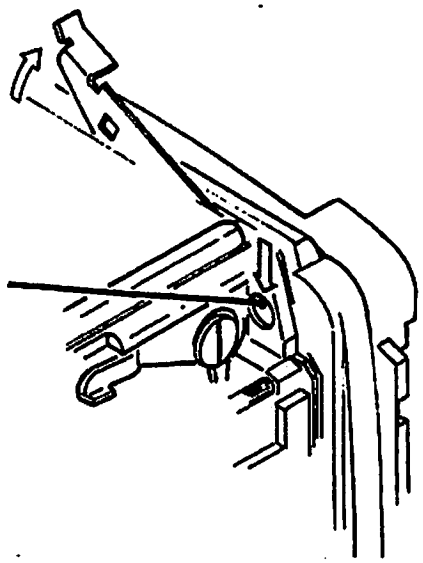


Fig. 97

1. Loosen 3 piece Screw (PD1.7x2.5) of Hinge plate (aRS2764).
2. Insert a driver in to the hole of the Panel (aRS2767).
   Tighten 1 piece Screw.
   Then adjusting Operation as shown in Fig. 97.

11-2 Removing Revolving adapter and Lens in trouble

a) Revolving adapter



1. Remove side plate, left (RS1621) or right (RS1622).
2. Pull R-lock lever out as much as possible.
3. Then thrust Slide plate with a screw.

b) Lens

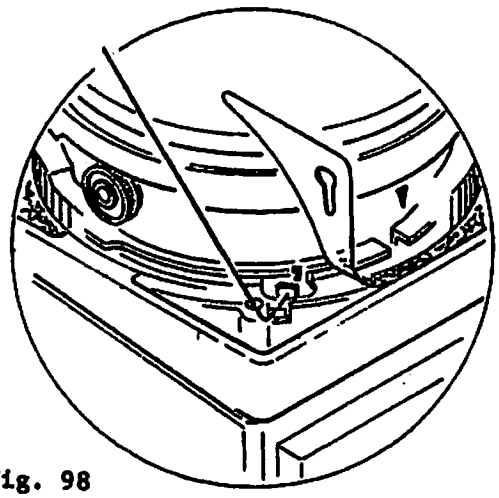


Fig. 98

1. Strip leatherrette off the right-upper position of Front cover.
2. Then thrust Lens lock lever (RS2123K2) by hook-shaped rod from the hole of Front cover as shown in Fig. 98.

12 Removing and attaching Top cover

12-1 Removing

(1) Remove Winding lever (RSH6413) and Top cover retaining screws (PB1.7x3, PB1.7x4).

(2) Remove Top cover (aRSH6621K2) pushing Preventive lever assy. (RSH7161K2) with a screw driver as shown in Fig. 99.

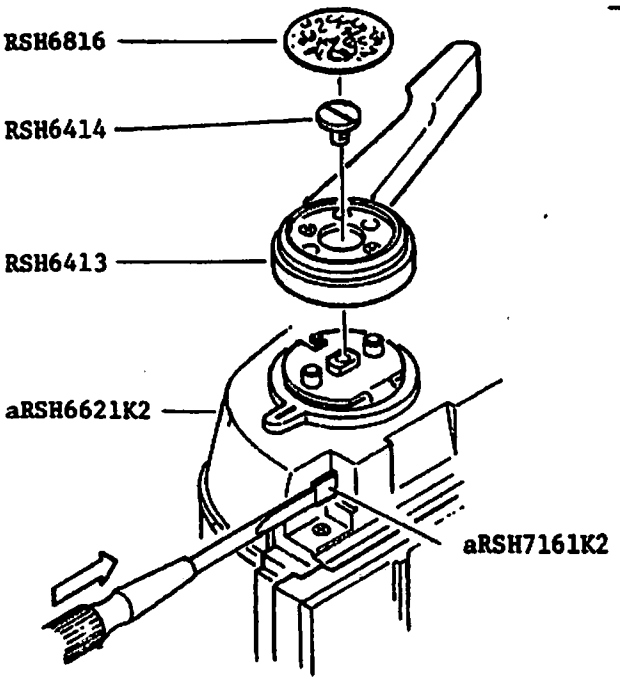


Fig. 99

12-2 Attaching

Locate the slit of Top cover on the top of the lever so as not to deform Preventive lever assy as shown in Fig. 100.

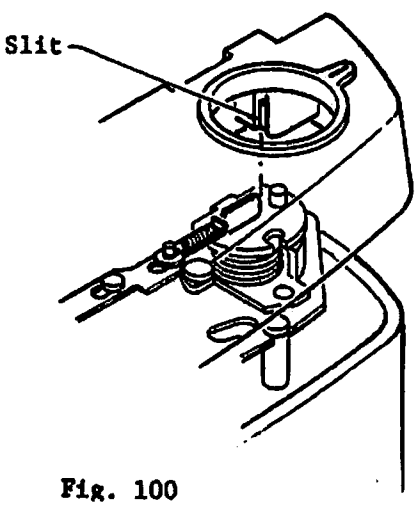


Fig. 100

13 Film advancing mechanism

The Arabic numerals in a circle and the arrow indicate the continuous operations of the film advancing.

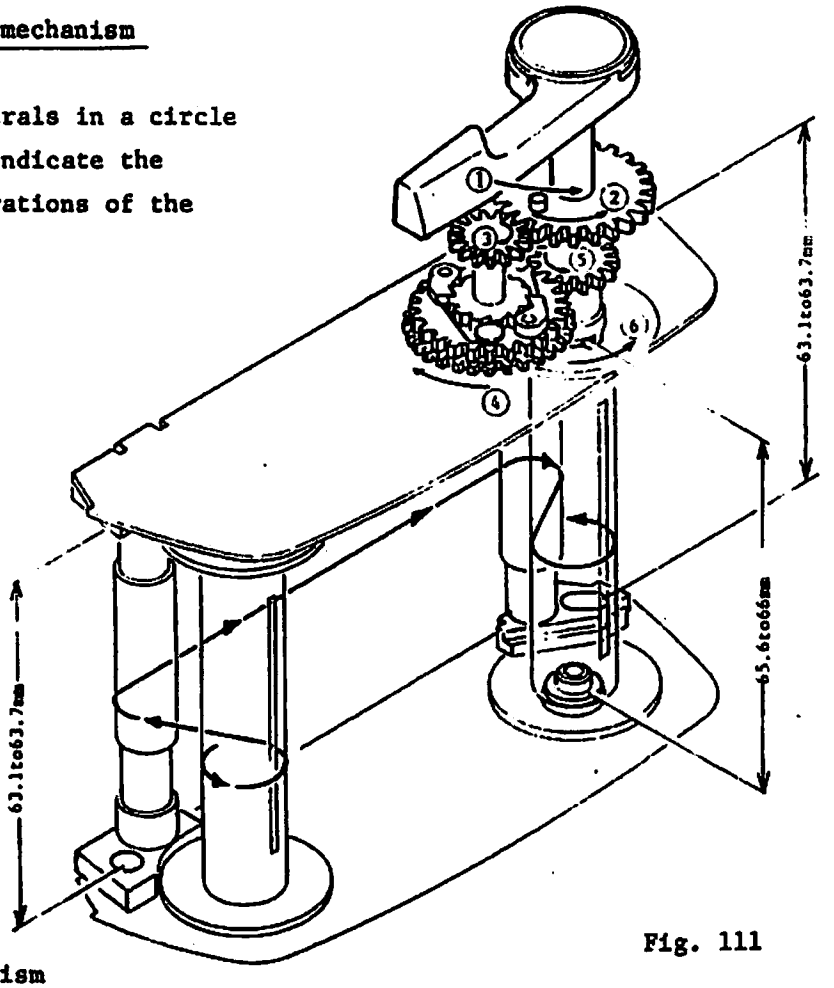


Fig. 111

14 Film wind-stop mechanism

14-1 Operating mechanism

(1) By closing Back cover, Lever ① and ② are pushed.

(2) Relative parts operate in the order of the numerals from 3 to 9 in a circle.

(3) Both ends of Release lever ⑩ fit Counter dividing divice and Winding stop gear ⑪ stopping film winding.

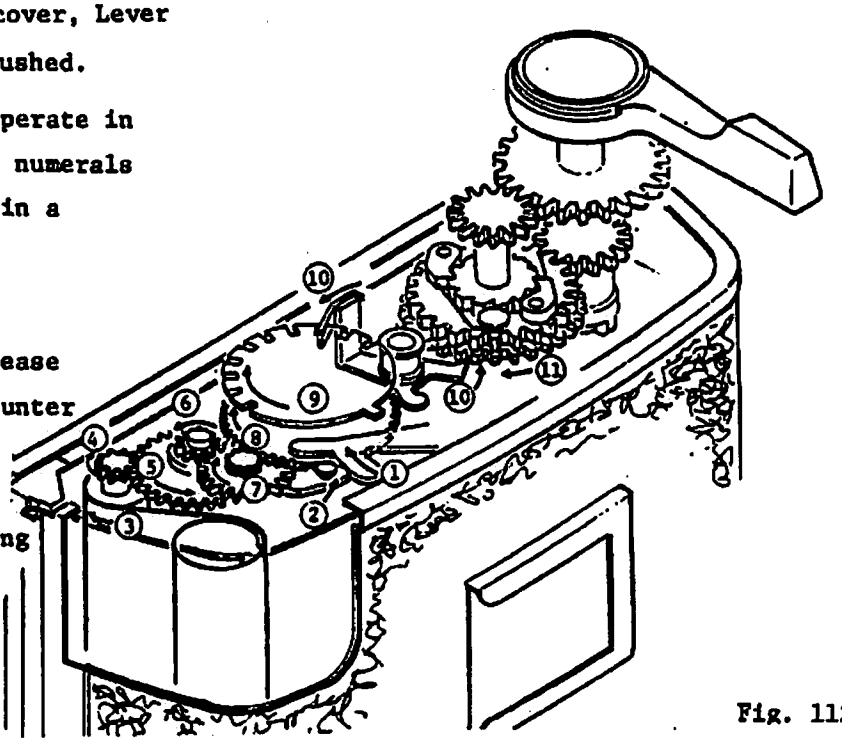


Fig. 112

14-2 Attaching and adjusting Film counter

a) Removing Film counter

(1) Pull the end of Charging lever (aRS7112K2) thrusting the other end of the lever down Base plate (aRSH6411K2) with a screwdriver.

(2) Remove Screw (RSH6498), and take out the film counter.

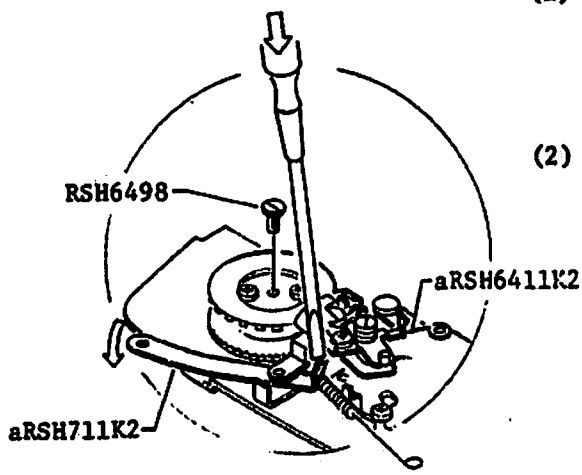


Fig. 113

b) Attaching Film counter

Before attaching, locate the position of Spring (RSH6495) and Anchor as shown in Fig. 114.

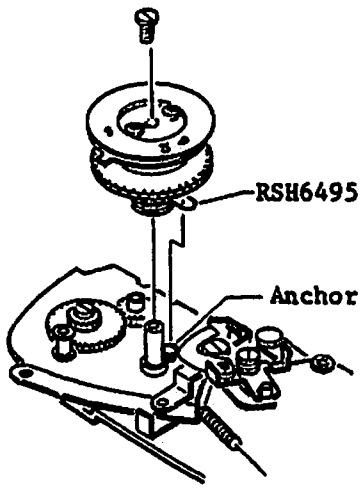


Fig. 114

Keep Release plate (aRS6461K2) with a finger and Release lever with a screw-driver being pushed for charging counter spring for $\frac{1}{2}$ turn in the direction of the arrow as shown in Fig. 115.

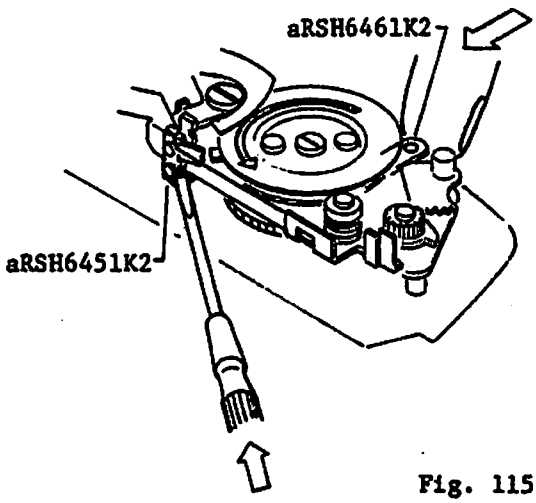


Fig. 115

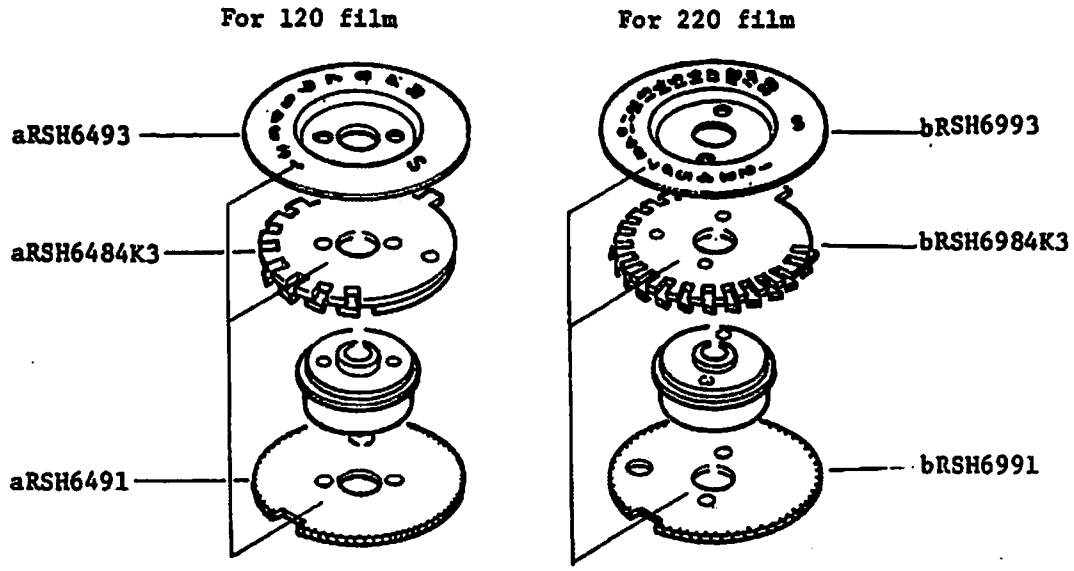


Fig. 116

NOTE: Locating positions of each parts are shown above Fig. 116.

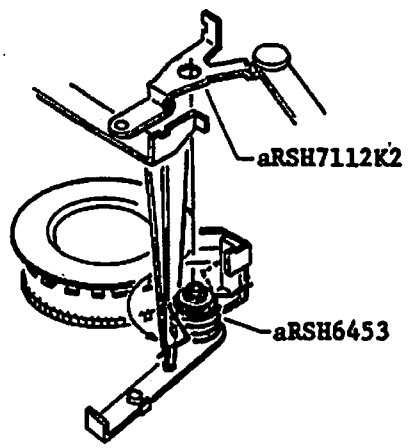


Fig. 117

c) Attaching Release lever spring

(1) Keep Spring (aRSH6453) wound for $\frac{1}{2}$ turn with a tweezer. (Fig. 117)

(2) Attach Charging lever and hook the spring on the lever as shown in Fig. 117 and 118.

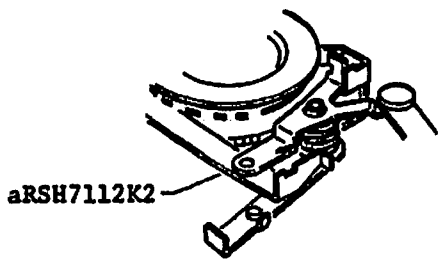


Fig. 118

15 Mechanism relative to Film wind-stop releasing

15-1 Operating mechanism

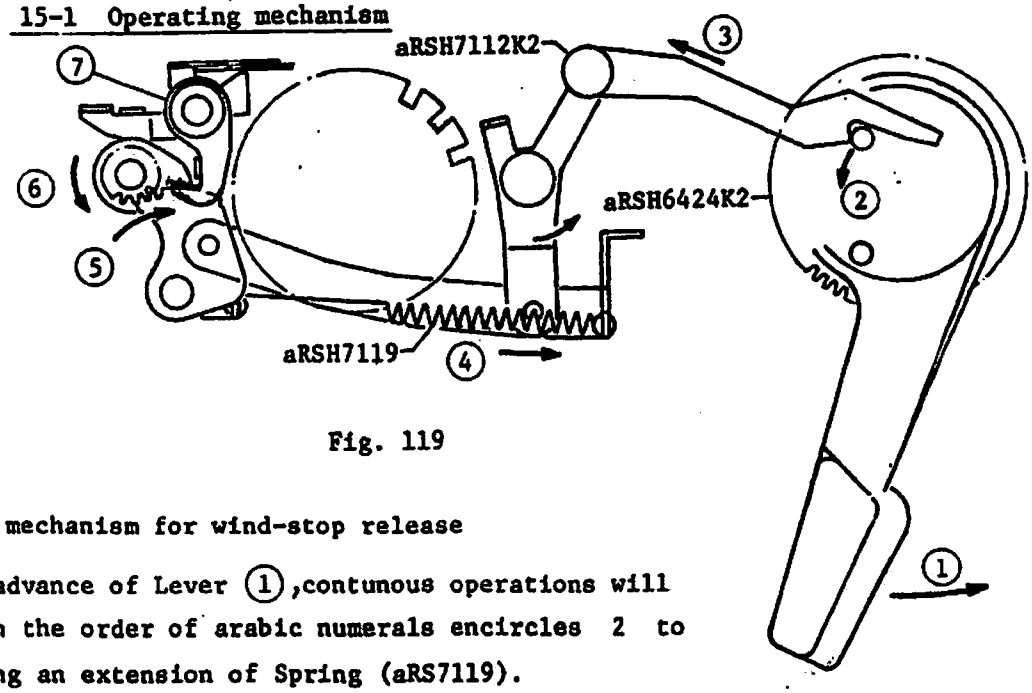


Fig. 119

a) Charging mechanism for wind-stop release

With an advance of Lever (1), contunous operations will follow in the order of arabic numerals encircles 2 to 7 causing an extension of Spring (aRS7119).

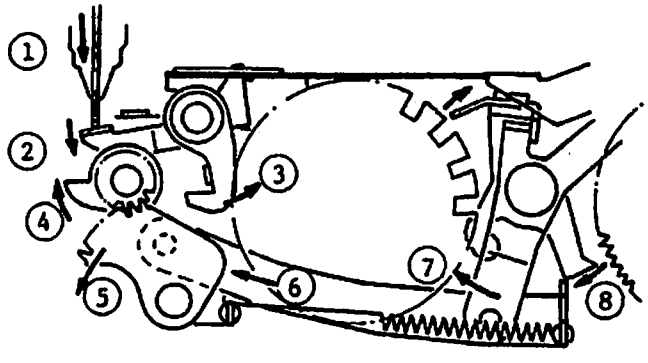


Fig. 120

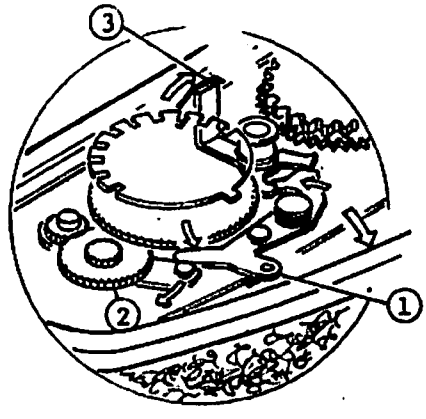


Fig. 121

b) Film wind-stop releasing mechanism

(1) With a release of shutter button Coupling pin (1) for film wind-stop releasing operates pushing Signal lever (2) and continuous operations from (3) to (7) encircled will follow.

(2) Release lever comes off from Counter dividing device and Winding stop gear as shown in Fig. 120

* Release plate (1), Third gear (2) and Release lever (3) come off from Film counter gear by opening Back cover. Consequently, Exposure counter automatically resets to S (Start) as shown in Fig. 121.

15-2 Attaching and Adjusting

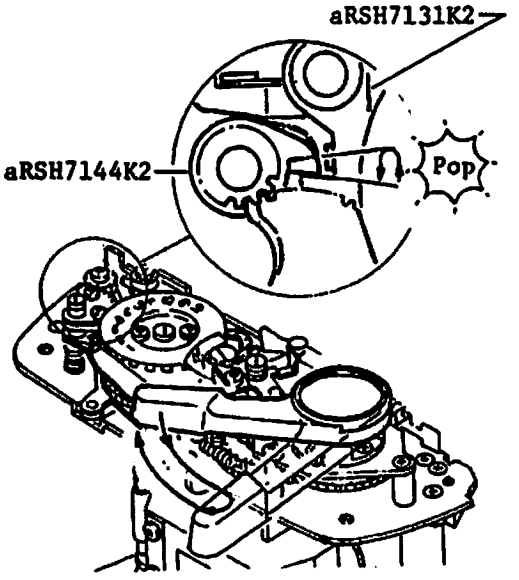


Fig. 122

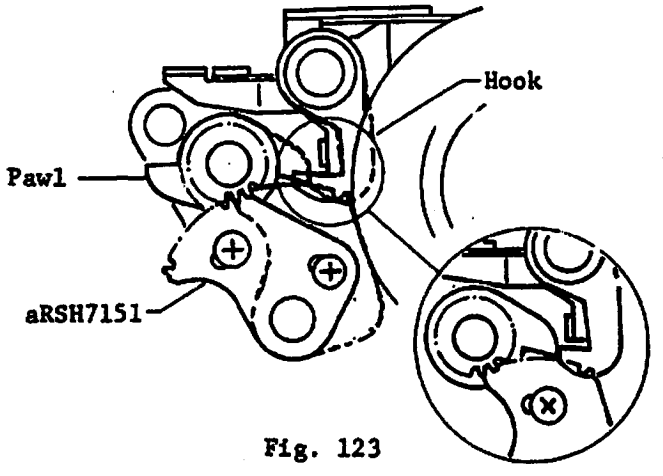


Fig. 123

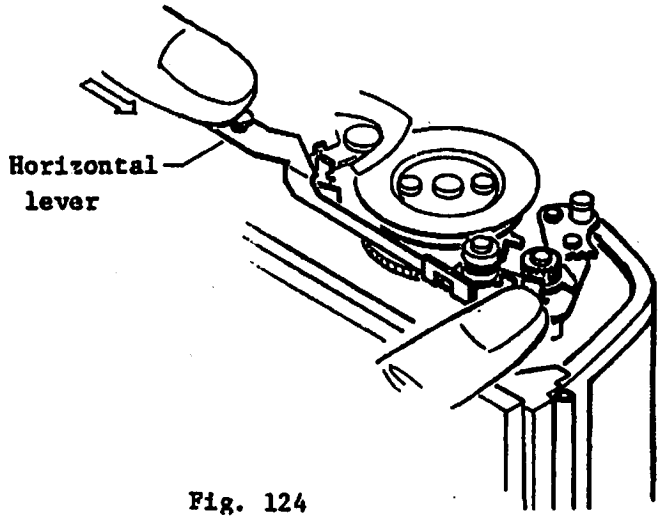


Fig. 124

a) Checking Pawl and Hook

1) By loading the film and advancing the Winding lever, Hook (aRSH7131K2) catches Pawl (aRSH7144K2).

2) Confirm the sound "POP" caused by the above-mentioned work of Hook and Pawl at every winding of the Lever for about 90° as shown in Fig. 122.

* When it does not pop, wind-stop releasing mechanism is not in good condition.

3) Confirm that Pawl shall return to its original position when pushing Sector gear (aRSH7151) with a finger just before Hook catches Pawl, and release the finger as shown in Fig. 123

NOTE: Film wind-stop release unloaded For changing Wind-stop release from setting position to releasing position slide Horizontal lever of Preventive lever assy. and push lever as shown in Fig. 124.

b) Checking operation of Charging lever

In case pawl does not pop by advancing the winding lever, check the following points.

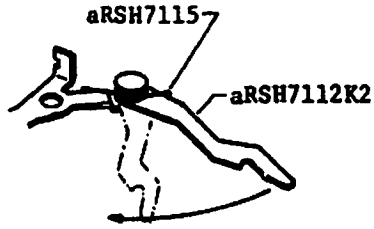


Fig. 125

(1) Charging lever (aRSH7112K2) shall move slightly by the force of Spring (aRSH7115) as shown in Fig. 125.

(2) Winding gear No. 1 (aRSH6424K2) and Base plate (aRSH6411K2) shall not prevent Charging lever from operating as shown in Fig. 126.

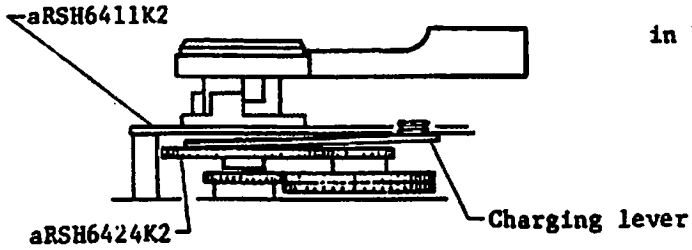


Fig. 126

c) Adjusting Hook and pawl overcharging amount

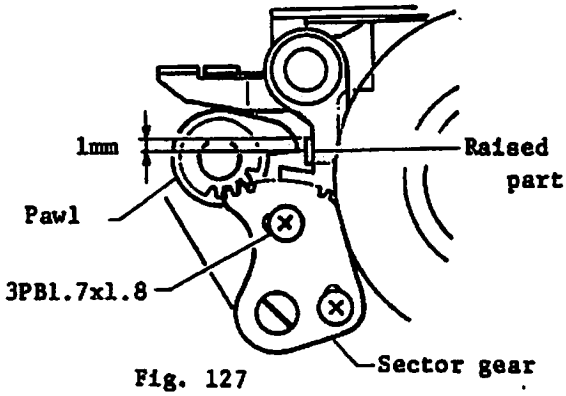


Fig. 127

(1) When Winding lever is advanced, Pawl's operating range shall be within front half of the raised part of Signal lever.

(2) Adjusting

Keep Release lever being released in order to separate pawl from Hook.

Loosen 2 pcs. of Screw(3PB1.7x1.8) and move position of Sector gear.

When needing further more adjustment, change the meshing position of the gear of Pawl and Sector gear as shown in Fig. 127.

d) Adjusting wind-stop releasing position

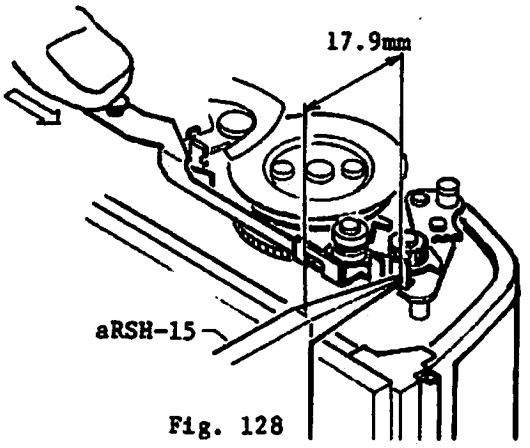


Fig. 128

(1) Wind-stop release

By loading the film and advancing Winding lever, Release lever shall be released when placing the edge with 17.9mm long of Signal gauge (aRSH-15) so as to touch with Signal lever as shown in Fig. 128.

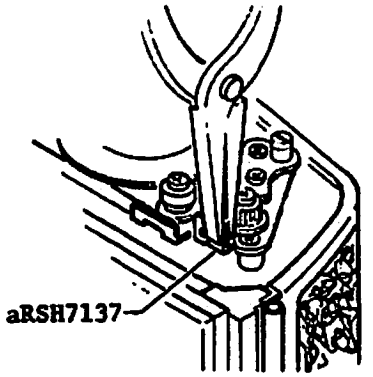


Fig. 129

Adjustment can be done by bending Signal lever with a pincers as shown in Fig. 129.

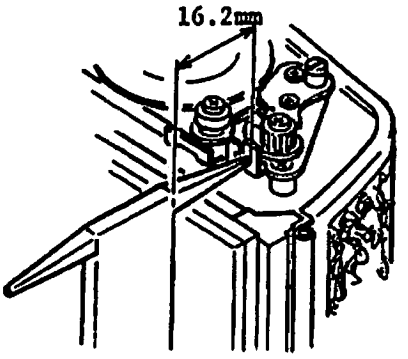


Fig. 130

(2) Horizontal lever operation of Preventive lever assy.

Load a film and advance winding lever.

(1) Place the edge with 16.2mm long of Signal gauge (aRSH-15) so as to touch with Signal lever as shown in Fig. 130.

(2) Horizontal lever of Preventive lever assy. shall return smoothly when returning Winding lever slowly.

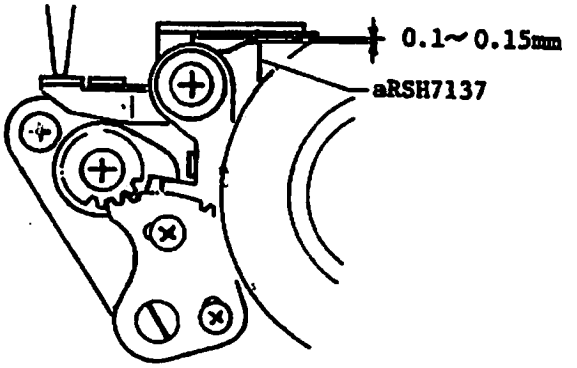


Fig. 131

Adjustment can be done by wearing away the edge of Signal lever to leave 0.1 to 0.15mm gaps between Horizontal lever and Signal lever as shown in Fig. 131.

* Film wind-stop release unloaded

Please refer to a) Note in Fig. 124.

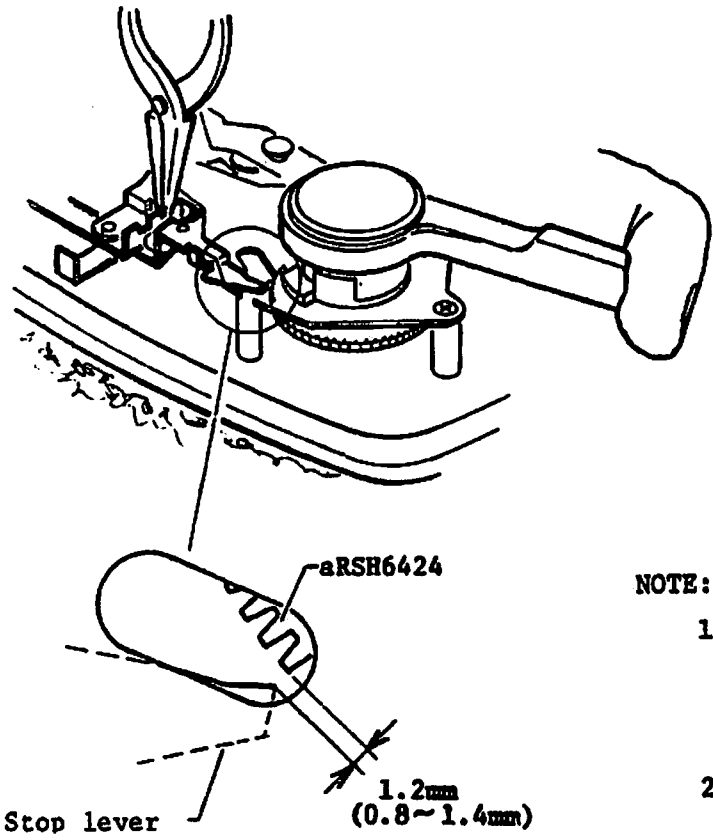


Fig. 132

e) Adjusting Stop lever

After loading and advancing the roll film, bend Connection arm of Charging lever with a pincers so as to leave 0.8 to 1.4mm gaps between Stop lever edge and Winding gear No. 1 (aRSH6424) as shown in Fig. 132.

NOTE:

1) Clearance less than 0.8mm

Rachet type film advance somtimes cannot be done.

2) Clearance more than 1.4mm

Film advance lever may not return by the action of Film-wind stop in ratchet typ winding.

16 Double exposure preventive mechanism

16-1 Operating mechanism

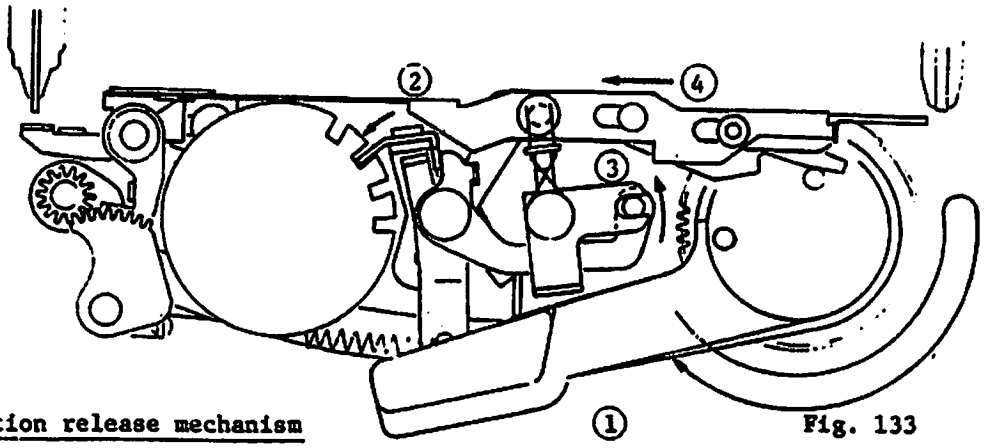


Fig. 133

a) Prevention release mechanism

By advancing Winding lever, continuous operations from ① to④ will follow releasing the preventive mechanism as shown in Fig. 133.

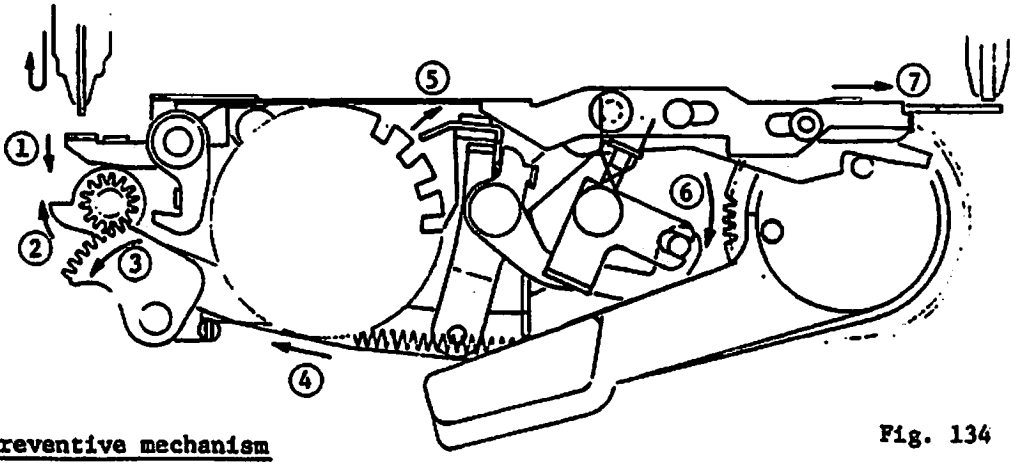
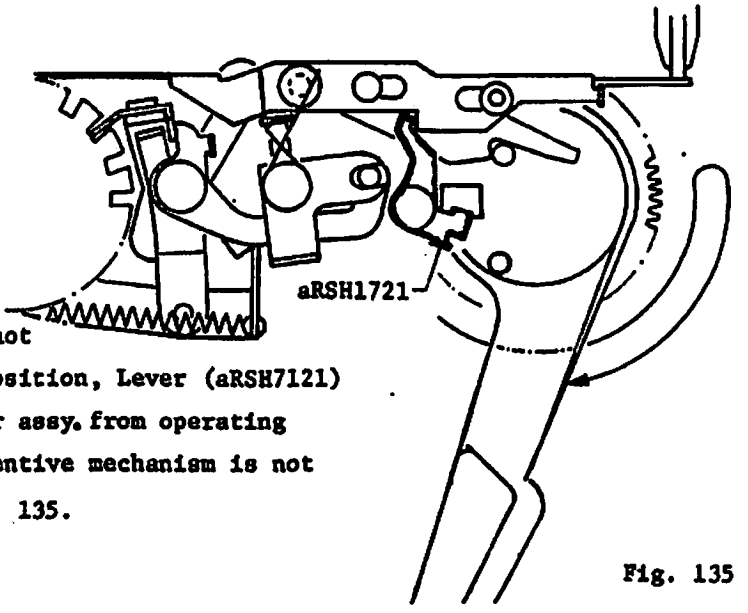


Fig. 134

b) Preventive mechanism

Coupling pin of revolving adapter operates Signal lever and continuous operations from 1 to 7 will follow preventing the double exposure as shown in Fig. 134.



NOTE:

When Winding lever does not return to its original position, Lever (aRSH7121) prevents Preventive lever assy. from operating and double exposure preventive mechanism is not released as shown in Fig. 135.

Fig. 135

16-2 Attaching and adjusting

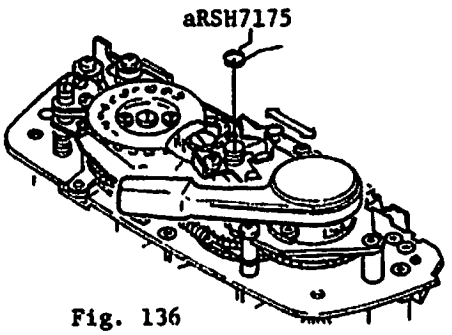


Fig. 136

a) Adjusting Preventive lever assy

Horizontal lever of the above lever assy. shall move very slightly with the weight of itself when removing (aRSH7175) as shown in Fig. 136.

(1) Horizontal lever

1) Advance winding lever and turn the exposure counter so that it sets between "S" to "1".

2) Bend Spring (aRSH7175) so as to leave less than 0.6mm gaps between the slit of Horizontal lever and Screw (3PB1.4x2) as shown in Fig. 137

* Judge 0.6mm gaps with an eye-measurement referring to 0.7mm gaps between edge fo Hub and head of Screw (3PB1.4x2) as shown in Fig. 138.

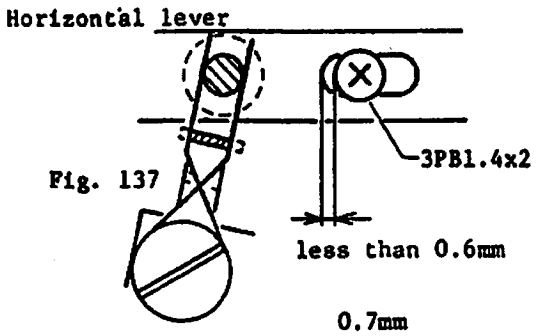


Fig. 137

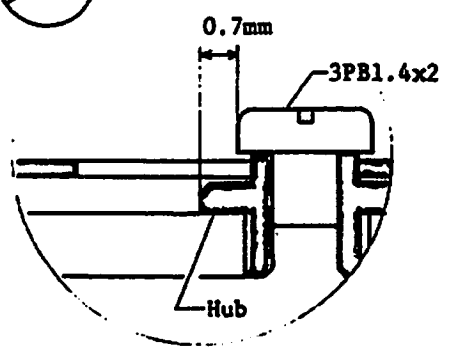


Fig. 138

(2) Adjustment at the counter "1"

1) Advance Winding lever, then Release lever fits Counter dividing device

2) Bend Spring (aRSH7175) so as to leave no clearance between the other side of slit and screw as shown in Fig. 139.

* Take care to keep both ends Spring paralell to each other when bending it as shown in Fig. 140.

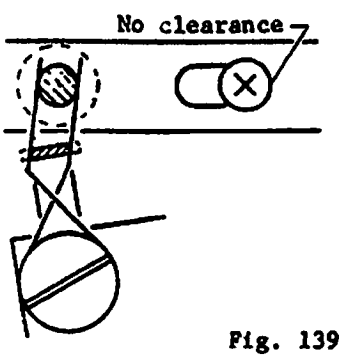


Fig. 139

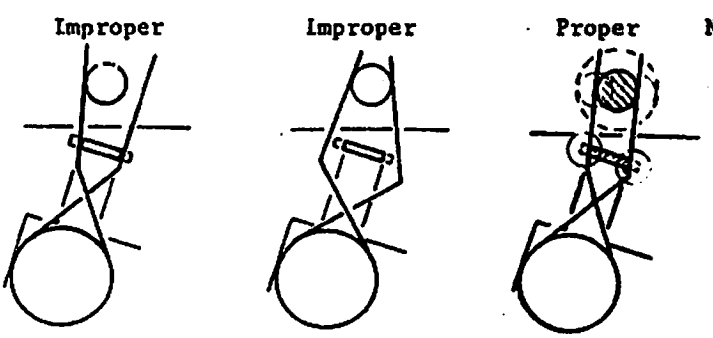


Fig. 140

NOTE: The location of Horizontal lever shall satisfy above (1) and (2).

b) Checking Double exposure prevention device

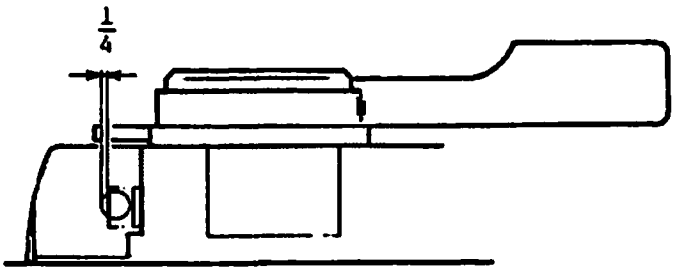


Fig. 141

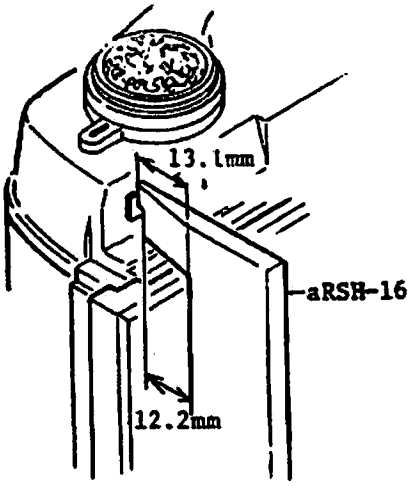


Fig. 142

1) By advancing Winding lever, Preventive lever shall disappear completely from the Top cover's hole for Coupling pin.

2) At released position, Preventive lever shall appear until it covers the hole more than $\frac{3}{4}$ as shown in Fig. 141.

3) Use Gauge for double exposure prevention device (aRSH-16) for confirmation, Preventive lever shall be within the range of 12.2 to 13.1mm including the play in the direction of to and for as shown in Fig. 142.

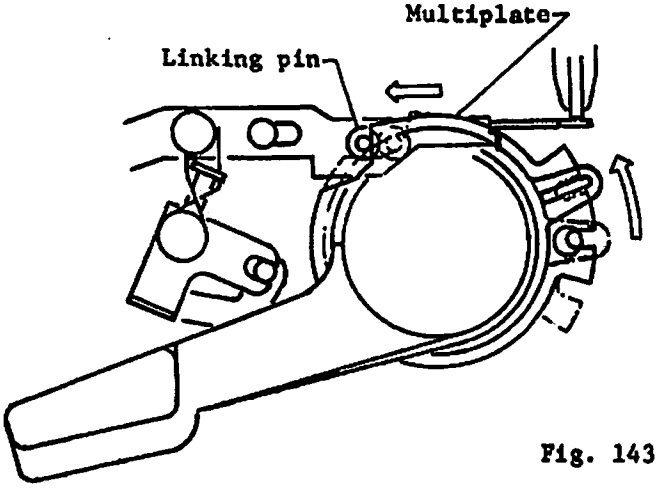


Fig. 143

17 Multiple exposure mechanism

1) At released position, Preventive lever moves until it fully covers the hole, and shutter button can not be released.

2) When Multiexposure lever is moved forward, Multi plate moves Linking pin of Operation lever, then Multiple exposure can be possible as shown in Fig. 143.

18 Operating mechanism of Red signal

Before exposure

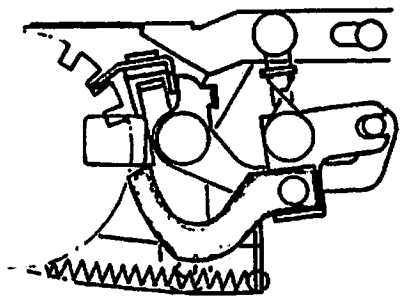


Fig. 144

Exposed

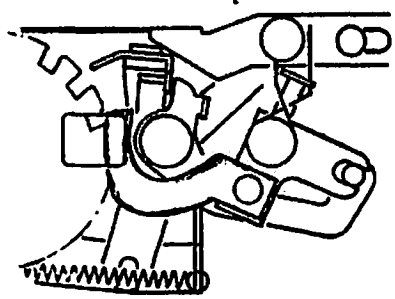


Fig. 145

a) Operation

1) Release lever fits Counter dividing device, and Red signal disappears as shown in Fig. 144.

2) Release lever comes off from Counter diriding device and Red signal appears as shown in Fig. 145.

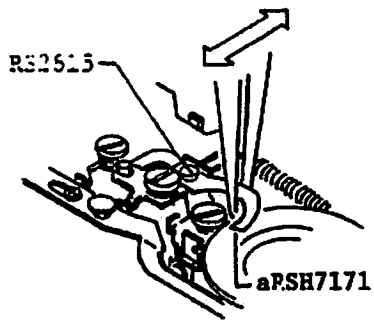


Fig. 146

b) Adjusting

Adjustment can be done by moving Red signal after loosening Screw (RS2615) as shown in Fig. 146.

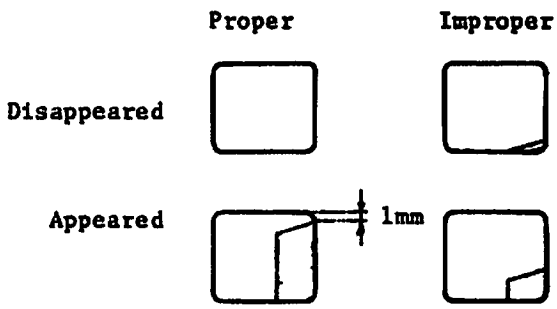


Fig. 147

19 Confirmation of Double exposure preventive mechanism

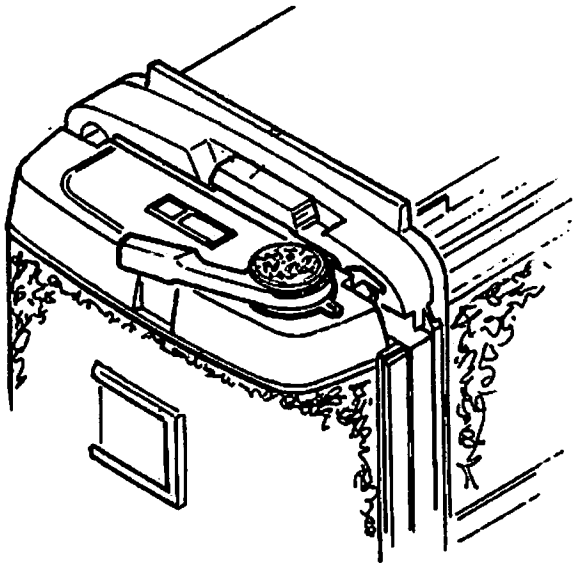


Fig. 148

Final confirmation shall be done for perfect operations on Body, Revolving adapter and Roll film holder, at vertical and horizontal positions.

Attach Revolving adapter and Roll film holder to the body for final confirmation of double exposure preventive mechanism at horizontal and vertical positions.

Lens

20 Operating standard for Lens shutter cocking pin

20-1 Operating standard for Lens shutter cocking pin

(Figure illustrates the angle to the guide pin seen from the rear side of the lens.)

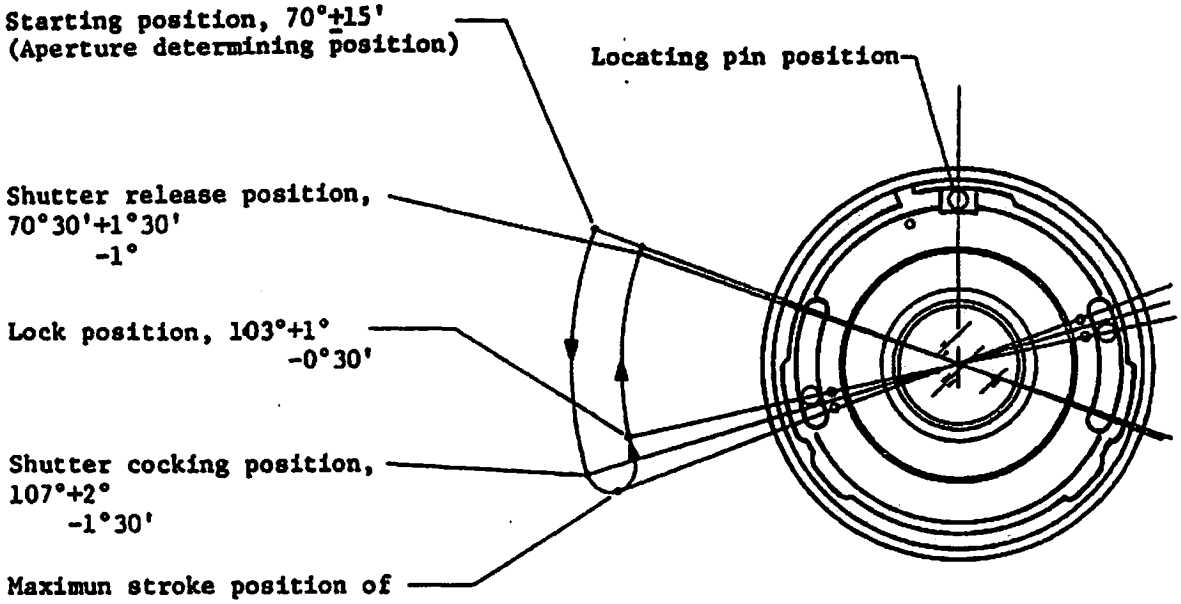


Fig. 149

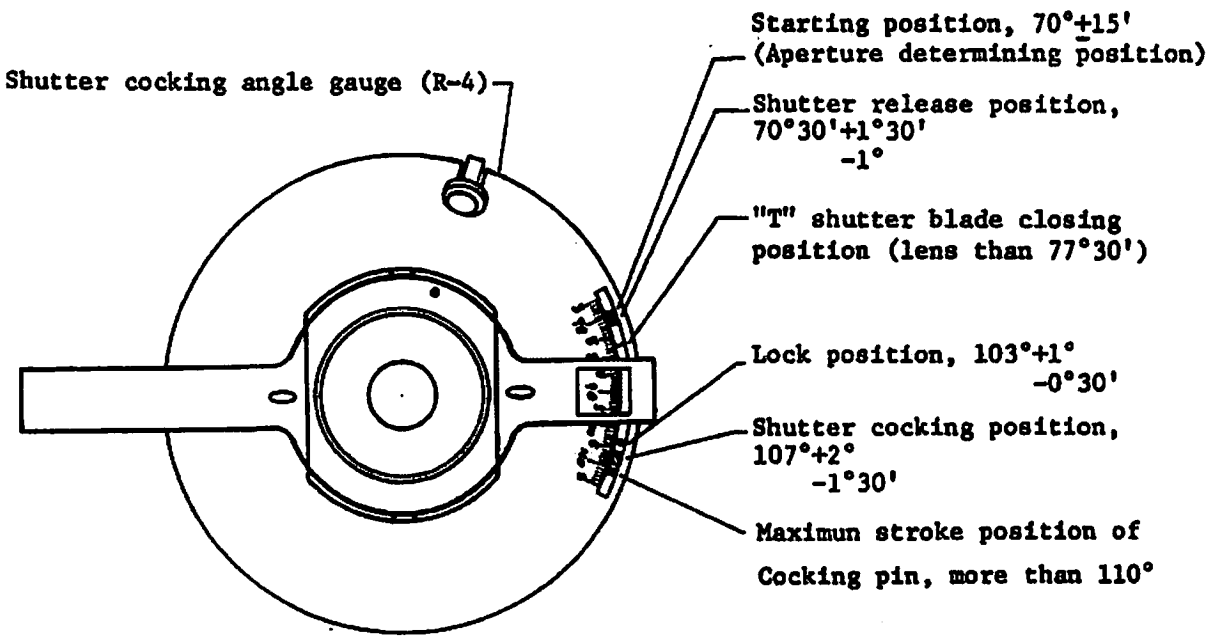


Fig.150

20-2 Checking the operating position of shutter cocking

1. Set the angle measuring gauge lever to the start position.. ... 70°±15' and install the lens on the Shutter cocking angle gauge confirming whether the lens locating pin guide and the lens locating pin are just fixed. (Fig. 151.)
2. Turn the gauge lever tip with a finger clockwise and confirm that the shutter is charged within the range of the shutter charge finish position. ..... 105°30' to 109°
3. Turn the gauge lever to the clockwise direction just after the shutter charge until the gauge lever reaches the maximun stroke position. ..... more than 110°
4. Return gently to the original position until the gauge lever comes to the lock position. ..... 103°+1°-20'
5. At the above position 4, keep unlocking lever pushing down with a finder until passing through the lock position, and turn the gauge lever so that the shutter can be released at the point of shutter release position. .....70°30'+1°30'-45'
6. "T" position
   Check the shutter by the same procedure mentioned above form No. 1 through No. 5 . The shutter blade opens at the shutter release position, and the shutter blade closes at the "T" shutter blade closing position by turning the gauge lever clockwise. ..... less than 77°30'

20-3 Adjusting the operating standard of Shutter cocking.

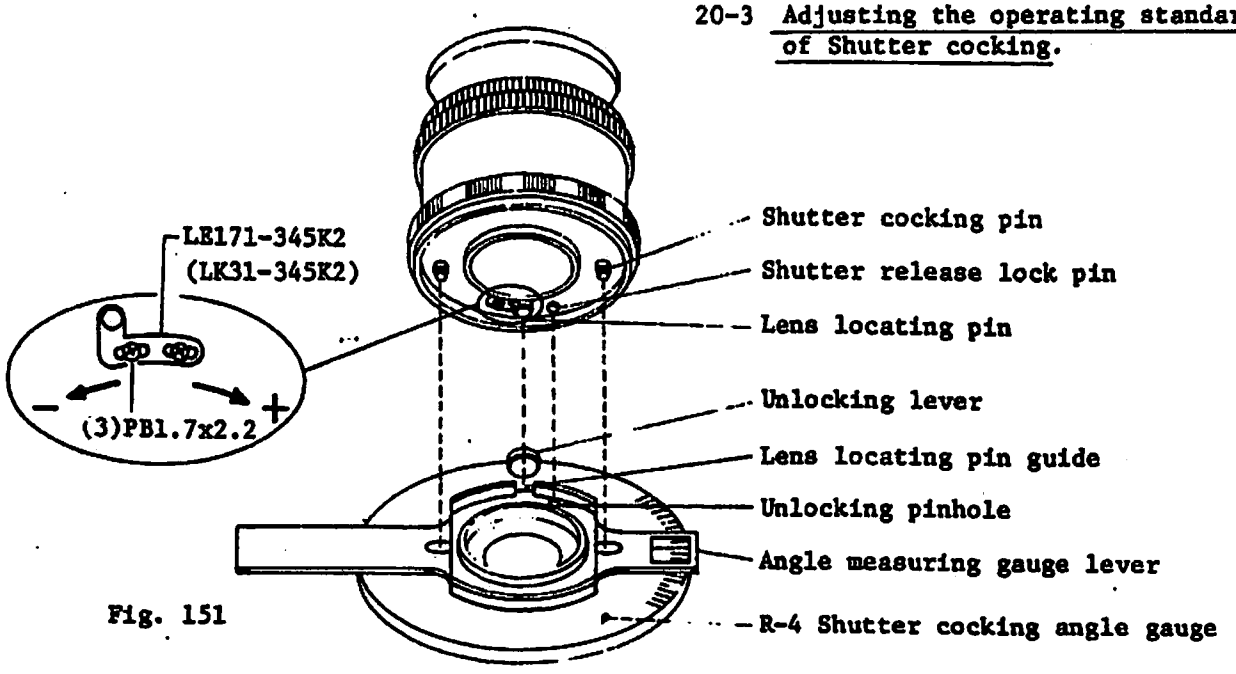


Fig. 151

In order to rectify the error during the checking process, its adjustment needs loosening the screw (3)PB1.7x2.2 of the lens locating pin (LE171-345K2) as shown in Fig. 151.

21 Adjusting method of RB Lens

21-1 Adjusting infinity of lens flange back

a) Setting Measuring Instrument

Set R-6 Lens infinity focusing check supporter on U-2 Auto-Collimator Model Vertical type. Then place the guide ring for the lens to be checked on R-6 Lens infinity focusing check supporter.

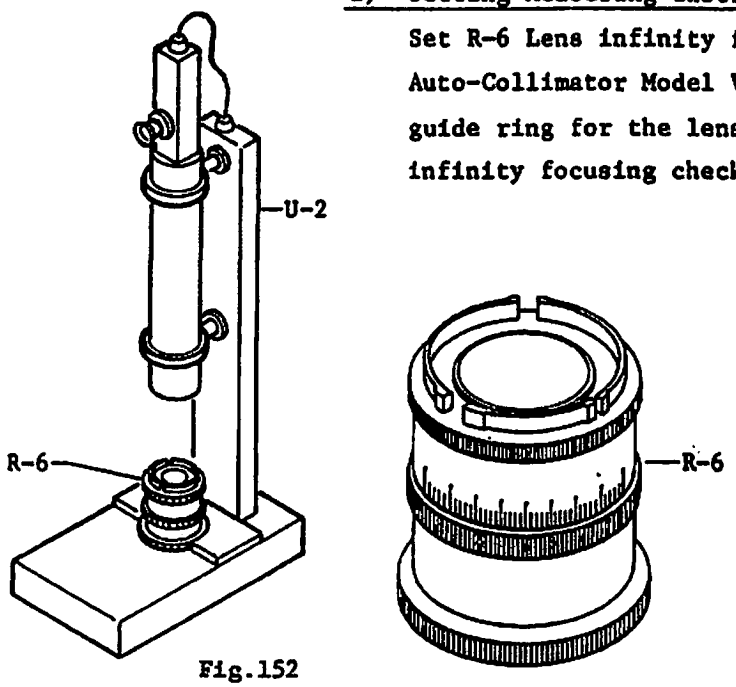


Fig.152

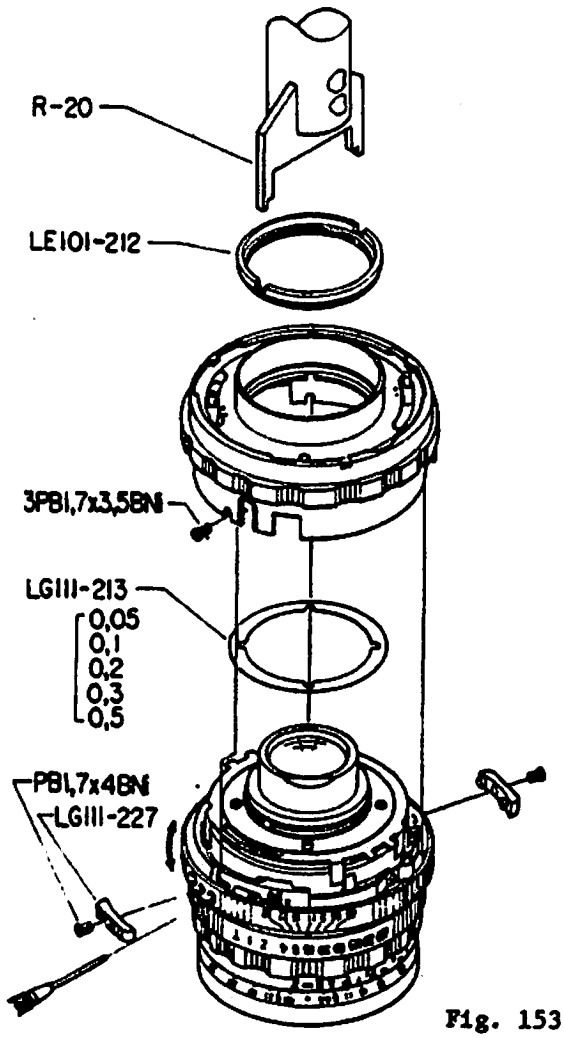
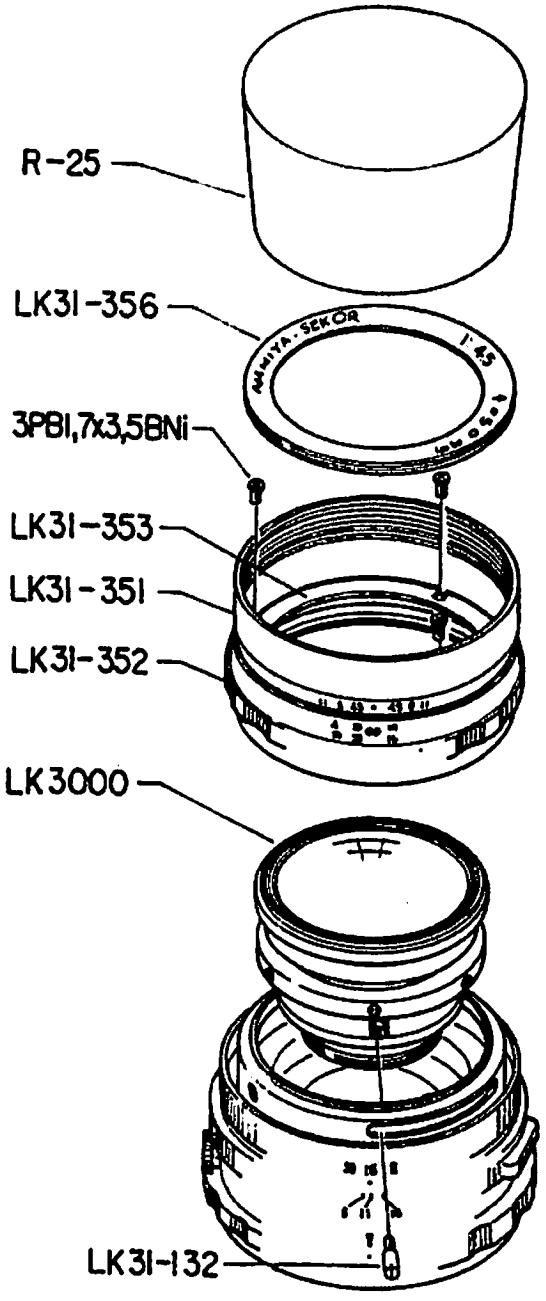


Fig. 153

b) Adjusting infinity

1. Remove Screw (PB1.7x4BNi) and knob (LG111-227).
2. Remove 3 pieces of Screw (3PB1.7x3.5BNi) shutter cover (LK31-331) and Fixing ring (LK31-221) by turning Aperture ring.
3. Use Wrench (R-20) to remove.
4. Remove shutter cover.
5. Use Adjusting washer 0.05 - 0.5 (LG111-213) to adjust infinity as shown in Fig. 153.

21-2 Removing Lens assy.for 50mm F4.5 and 65mm F4.5 NB Lenses



1. Use Rubber tightener (R-25) to remove Name ring (LK31-356).
2. Remove 3 pieces of Screw (3PB1.7x3.5BNi), then Depth of field scale ring (LK31-351) and focusing ring (LK31-352) can be removed.
3. Remove Coupling pin (LK31-132)
4. Lens assembly can be removed from the lens barrel by turning it counterclockwise.

21-3 Attaching Lens assembly for 50mm F4.5(LK31) and 65mm F4.5 NB(LH111)

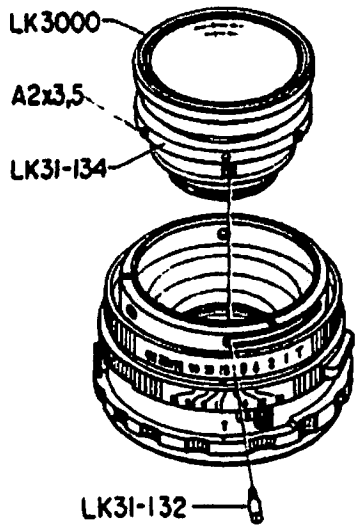


Fig. 155

1. Loosen 3 pieces of Set screw (A2x3.5)
2. Attach Lens assembly to the shutter in the lens barrel by turning Lens assembly clockwise as shown in Fig. 155.
3. Insert a screwdriver in a hole for coupling pin of Focus adjusting ring and move a screwdriver clockwise pressing it strongly until the front lens indicates infinity.

NOTE: A hole for coupling pin shall locate a little bit back from the slit of the barrel as shown in Fig. 158.

Position of Set screw(A2x3.5)

50mm F4.5

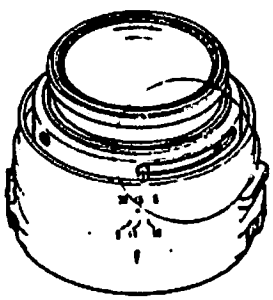


Fig. 156

65mm F4.5 NB

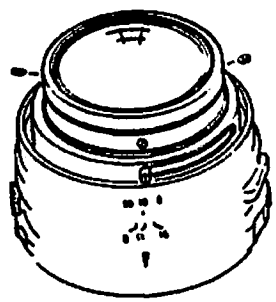


Fig. 157

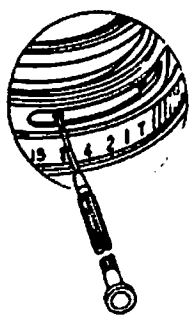


Fig. 158

4. Tighten one piece of Set screw (A2x3.5) as shown in Fig. 159
5. Check infinity indication of Focus adjusting ring by turning Linking pin (LK31-132) clockwise.
6. Loosen Set screw tightened before and move coupling pin clockwise and quietly until it touches the end of the slit.
7. Tighten 3 pieces of Set screw.

NOTE: Please refer to Fig. 157 when attaching Floating ring screw (A2x3.5) to 65mm F4.5 lens.

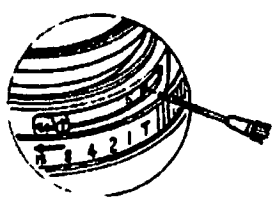
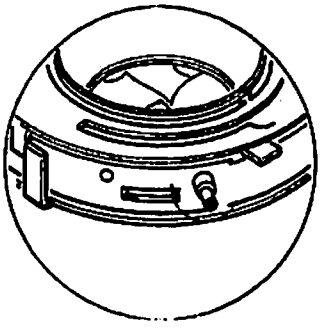


Fig. 159

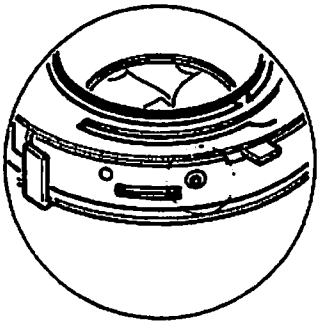
NOTE: Modification for RB67 Lenses Shutter and Shutter cover

Current Shutter



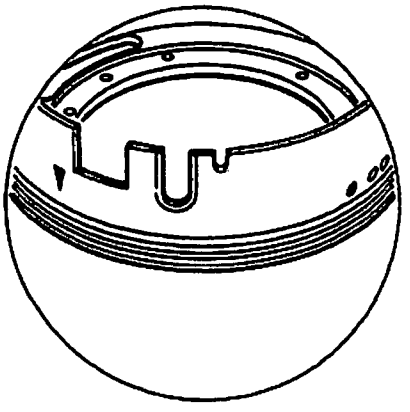
653E-1
-2

Modified Shutter

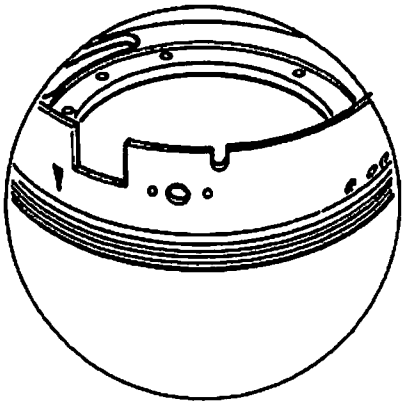


653E-1A
-2A

Current Shutter cover



Modified Shutter cover

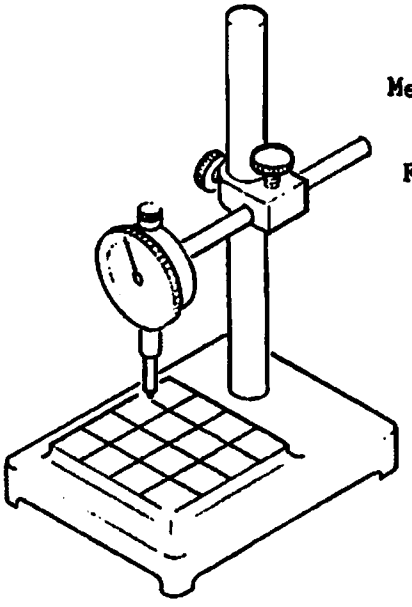
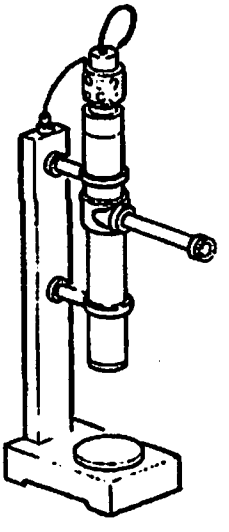
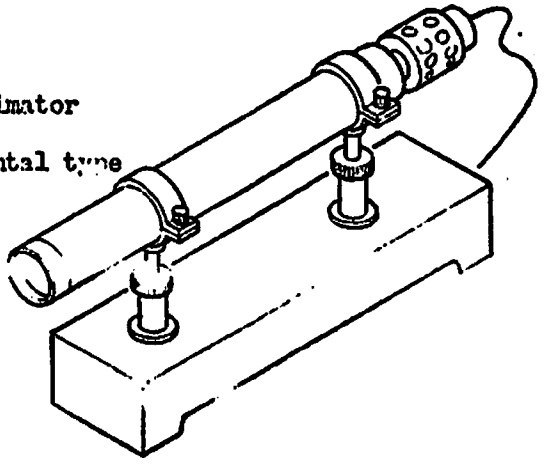


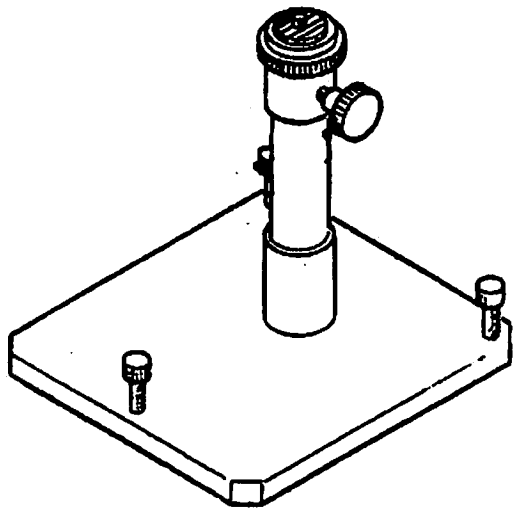
LK31-331
LG251-331
LE103-331
LE171-331
LE122-212

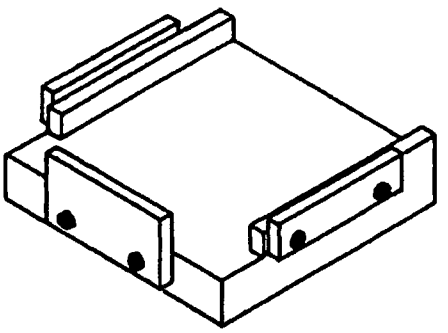
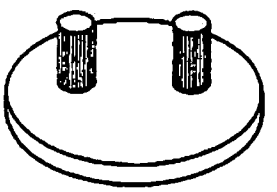
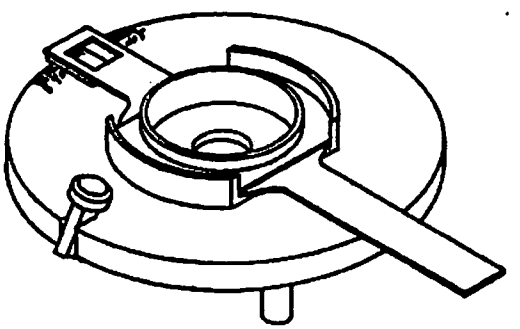
LK31-331-A
LK251-331-A
LE103-331-A
LE171-331-A
LE122-212-A

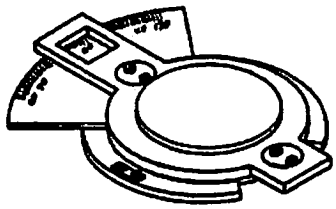
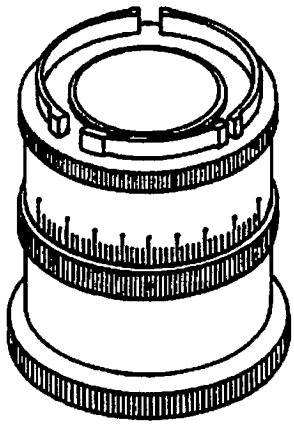
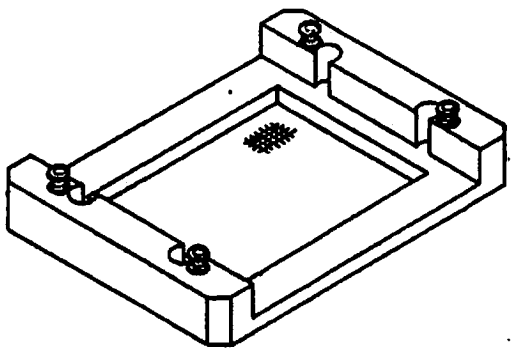
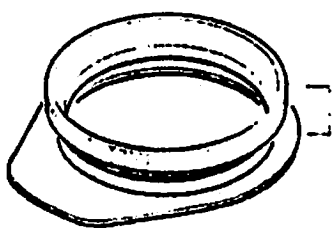
Special Tool List and Special Measuring Instrument List

MEASURING INSTRUMENTS FOR ALL CAMERA LINES OF MAMIYA CAMERAS

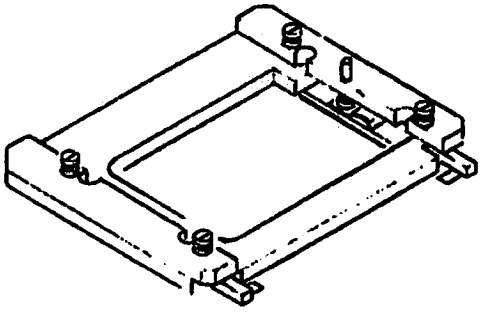
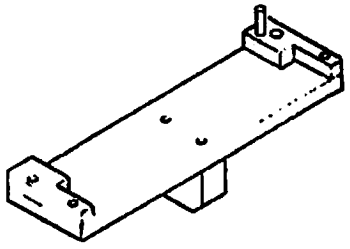
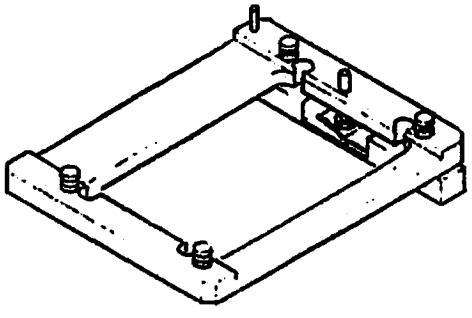
Instrument No.	Description and Use	Delivery period
U—1	 Measuring instrument with dial gauge For checking flange focal distance and parallel of lens mounting	2 months
U—2 Auto collimator Model Vertical type	 For inspection of lens infinity (Please refer to the lens repair manual)	3 months
U—3 Collimator Model Horizontal type	 For inspection of lens and finder infinity	3 months

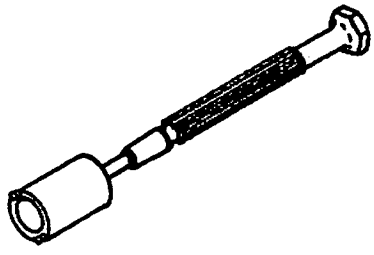
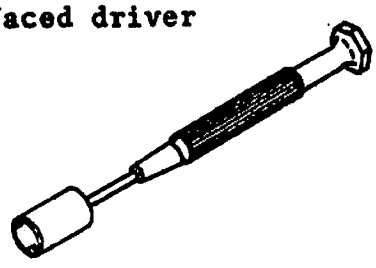
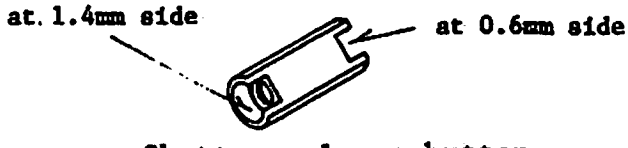
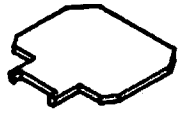
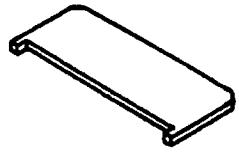
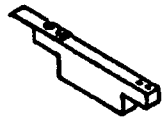
Tool No. (Old tool No.)	Description & Use	Delivery Period	Unit Price FOB/Japan US$
U-6	 Camera body Supporter		For adjusting focus of the View finder

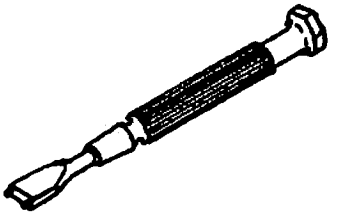
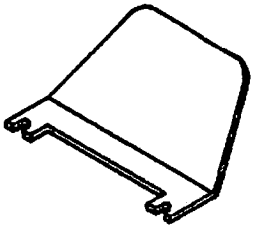
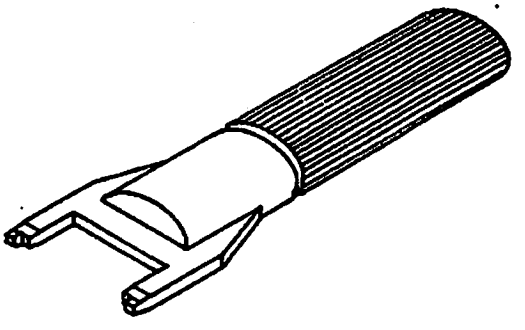
Tool No. (Old tool No.)	Description & Use	Delivery Period	Unit Price FOB/Japan US$
R-1	 Camera body supporter (Exclusively used for Inst. No.U-1)	1.5 months	
R-2	Standard gauge bar (Exclusively used for Inst. No.U-1)	1.5 months	
R-3	 Parallel disc gauge (Exclusively used for Inst. No. U-1)	1.5 months	
R-4	 Shutter cocking angle gauge (Please refer to the Lens-repair manual)	1.5 months	

Tool No. (Old tool No.)	Description & Use	Delivery Period	Unit Price FOB/Japan US$
R-5	 Body-cocking angle gauge (Please refer to the Body-repair manual)	1.5 months	
R-6	 Lens infinity-focusing check supporter (Please refer to the Lens-repair manual)	2.0 months	
R-8	 Focusing checking grund glass frame.	1.5 months	For Auto-Collimator (Vertical type) For checking Body-focusing and Lens-focusing
R-9	 Focusing checking plat and ring		For using Dial gauge checking Body-focusing and Focusing screen

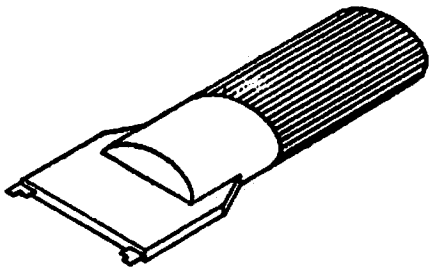
SPECIAL TOOLS AND MEASURING INSTRUMENTS FOR MAMIYA RB67 Pro S CAMERA

Instrument No.	Description & Use
aRS-1	 Jig for vertical and horizontal position
aRS-2	 Release lock bar adjusting tool
aRS-3	 Release lock pasitioning gauge.

Tool No. (Old tool No.)	Description & Use	Delivery Period	Unit Price FOB/Japan US$
R-11 (RS-1172)	 Pin faced driver	1.0 month	For tightening and loosening RS-1172 Nut
R-12 (RS-1342)	 Driver	1.0 month	For tightening and loosening RS-1342 Nut
R-13 (RS-1465)	 Shutter release button check gauge	1.0 month	Shutter must be released by pushing the shutter release button with shallow cut side-B and not be released with deep-cut side-A
R-14 (RS-1616)	 Wrench	1.0 month	Fot tightening and loosening Tripod socket (RS-1616)
R-15 (RS-2139)	 Wrench	1.0 month	For wrenching Retaining nut (RS-2139)
R-16 (RS-2531)	 Coupling arm check gauge	1.0 month	For checking signal lever (RS-2531)

Tool No. (Old tool No.)	Description & Use	Delivery Period	Unit Price FOB/Japan US$
R-18	 Adjusting driver	1.0 month	For adjusting RS-2623-Screw
R-19	 Adjusting tool	1.0 month	For adjustment of focusing screen
R-20	 Wrench	1.0 month	For wrenching Shutter fixing nut For 50mm 65mm 90mm 127mm 180mm Lens

R-21
(LH61-124)

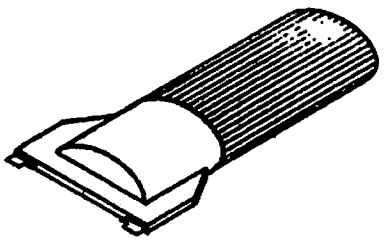


Rear lens spanner

1.0 month

For 65mm f4.5 lens

R-22
(LG111-116)

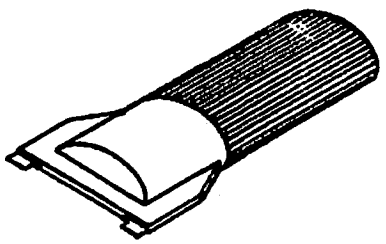


Rear lens spanner

1.0 month

For 90mm f3.8 lens

R-23
(LE101-114)

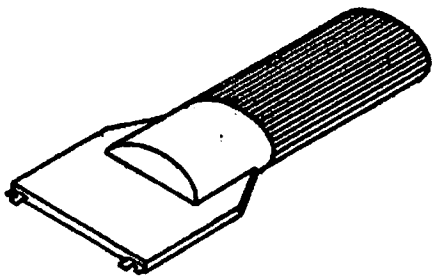


Rear lens spanner

1.0 month

For 127mm f3.8 lens

R-24
(LE121-121)

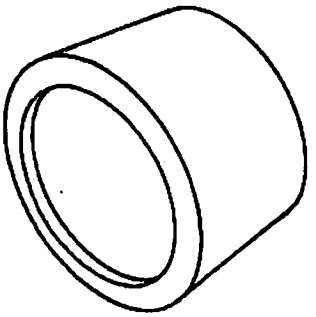


Rear lens spanner

1.0 month

For 250mm f4.5 lens

R-25

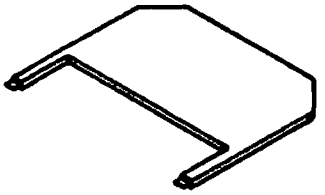


Rubber tightener

1.0 month

For tightening and loosening lens-name ring

R-26

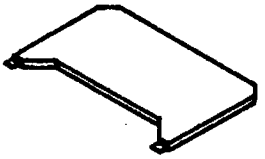


Front lens wrench

1.5 months

For 65mm f4.5 lens

R-27

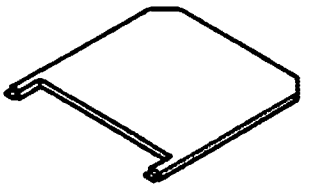


Front lens wrench

1.5 months

For 90mm f3.8 lens

R-28

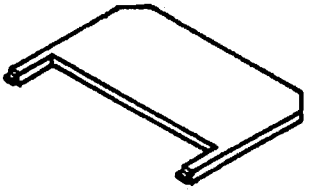


Front lens wrench

1.5 months

For 127mm f3.8 lens

R-29

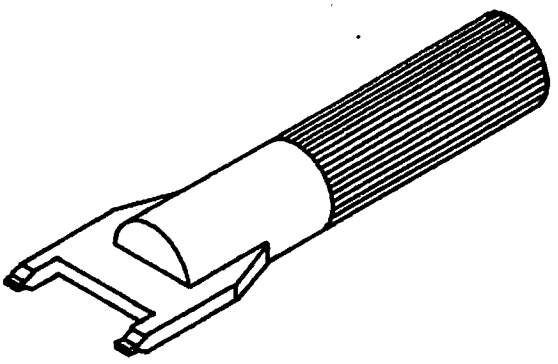


Front lens wrench

1.5 months

For 180mm f4.5 lens

R-30



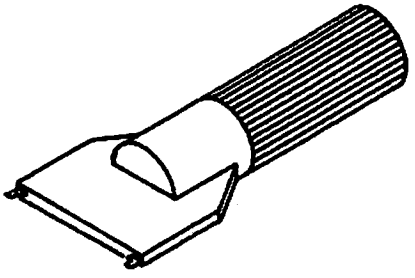
Wrench

1.5 month

For 360mm F6.3 lens
250mm f4.5 lens

Wrenching mounting fixing nut.

R-31

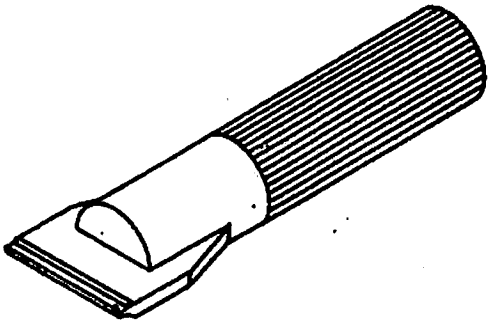


Rear lens spanner

1.5 month

For 360mm F6.3 lens

R-32



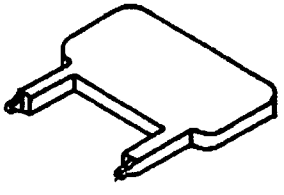
Wrench

1.5 month

For 360mm F6.3 lens
250mm f4.5 lens

Wrenching shutter fixing nut

R-33



Rear lens wrench

1 month

For 50mm F4.5 lens

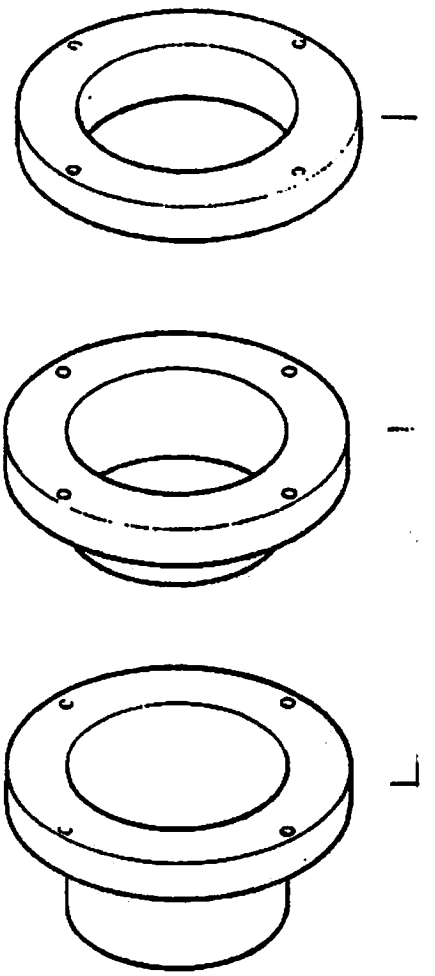
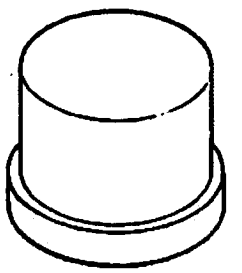
R-34

Standard gauge bar

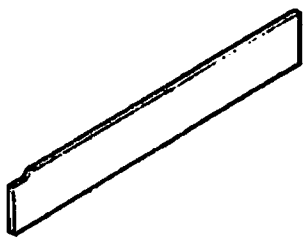
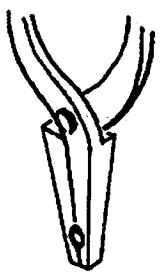
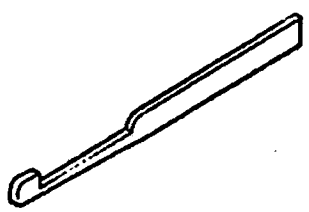
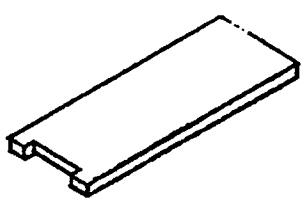
(Exclusivly used for Inst. No U-1)

1.5 month

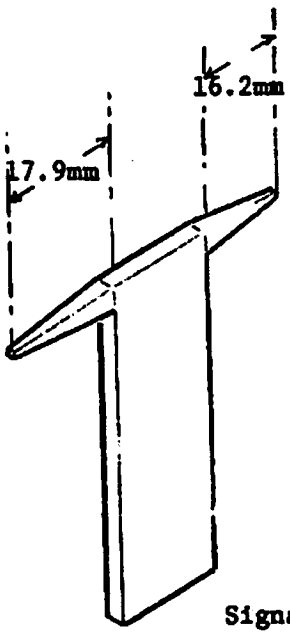
For checking length and parallel of shutter cover and Fixing ring

Tool No. (Old tool No.)	Description & Use	Delivery period	Unit price FOB/Japan US$
R-35			Protective cover ring 1 set (3pcs) For RE lens
R-36			Parallele gauge For 50mm and 6.5mm

SPECIAL TOOLS AND MEASURING INSTRUMENTS FOR MAMIYA RB67 Pro S CAMERA

Tools No.	Description & Use
aRS-11	 Chicking for red signal bar
	Gauge for red signal bar.
aRS-12	 Adjusting for red signal bar
	Adjusting plier
aRS-13	
	Stop lever positioning gauge.
aRS-14	
	Lock positioning gauge

aRSH-15



Signal gauge

For checking Wind-stop release and Signal lever positioning

aRSH-16

Gauge for double exposure prevention device